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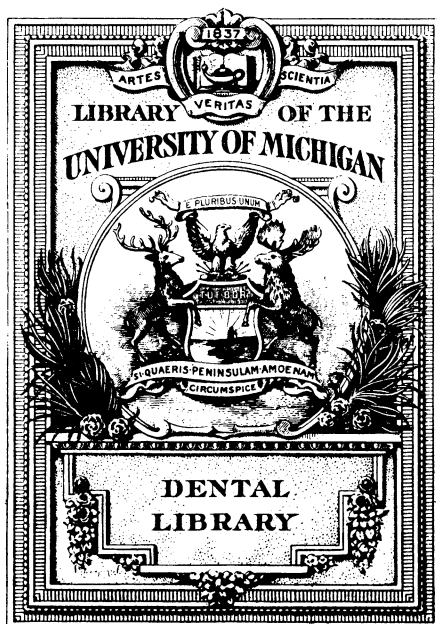
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NORMAN WILLIAM KINGSLEY, M. D. A. D. D. S.

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Progressive Course of Practical Instruction

ORTHODONTIA.

BY J. N. McDOWELL, D. D. S., PROFESSOR OF ORTHODONTIA, COLLEGE OF DENTISTRY, UNIVERSITY OF ILLINOIS.

CHAPTER IX.

The author realizes that it is impossible for every one to use the same appliances for treatment of cases of malocclusion similar in form. This, of course, is due either to the method one has been taught at college or the method one has been in the habit of using. Many get the best results from fixed appliances alone, while others prefer to use in connection with the fixed appliances some form of movable appliance. The author has always used the fixed regulating appliance and gives the preference to that method in this series of articles. Considerable material has been given prior to the consideration of treatment, as the author feels that the greatest importance lies in the fact that it is best to know the why and wherefore of treating a case and its possibilities prior to treatment with an appliance.

The time required for treatment of cases depends entirely upon the form of malocclusion and the age. The time may vary anywhere from two weeks to one year, or longer, but the average case usually requires from six to nine months, not considering retention. It is best not to commit oneself as to a definite time of treatment, and it is also best not to hurry the treatment of a case. A slow persistent method, occasionally removing the appliances and cleaning them and replating them, will be found the best in the end. Often gum tissue will be found inflamed or hypertrophied between two or three of the teeth as a result of wearing the appliance. When it becomes badly hypertrophied it is best to clip it off with a small pair of curved surgical scissors and then cauterize the tissue with the chlor-acetic acid. Some authors claim that an occasional rest is necessary, but once a case is started it should be carried through to the end if possible. Let it be remembered that the physiological architectures of the body are continually building up and tearing down tissues when teeth are being moved. It is also very unsatisfactory to both patient and operator after vacation to begin at the

same old grind again. In the majority of cases usually more harm than good is done by a long vacation.

Starting the Case. One or two visits from the patient, if a small child, is best before putting on any appliances. This not only gives the operator time to study the case and habits of the patient, but aids in dispelling the fear that usually accompanies a patient on the first visit. Most patients, both young and old, are inclined at first to look upon the operation of correcting malocclusion of the teeth as a very serious and dangerous operation, accompanied with severe pain. To dispel the fear at first is half the battle. In order to accomplish this it is best to have the patient come every day for three or four days and make a few bands or make and fit some other part of the appliance necessary. After three or four visits the smallest part of the appliance is put on and allowed to remain a day or two; then slowly add the different appliances necessary. It is best to see a patient about three times a week, and it may be necessary in special cases to see them every day for awhile. But nature cannot properly respond to pressure more than three times a week when the teeth are to be moved some distance. If the appliances are tightened too often the appliance will give way or the teeth become elongated, or the process fractured. It takes from two to three weeks for a patient to get comfortably used to an appliance. Very weak pressure should be used the first two or three weeks. It is best to create the idea at first that the operation is almost painless; then in a few weeks the heaviest and most persistent pressure can be used with only a few complaints. The author, as probably many others have done, used to put most all of the appliances on at the first sitting and put on considerable pressure at once. This is certainly one of the most serious mistakes that can be made, and usually brings the patient back early next morning with tender teeth, nervous and worn out. It must be remembered, when putting on appliances, that many patients can stand heavy and persistent pressure from the start, while the teeth of others will become painful and sore at once and remain so all through the treatment. This tender condition of the teeth seems to be a natural condition with some patients, and the only remedy is to use smaller and weaker appliances and take a longer time to treat such cases.

Separating Teeth for Banding. Teeth wedged tightly together, crowded, overlapping, etc., either the anterior or distal, are difficult

to band. To eliminate the difficulty of passing banding material between the teeth, for the anterior teeth, first pass a fine ribbon saw down between the teeth several times to dislodge any rough edges or tartar, fillings, etc. (Fig. 1.)

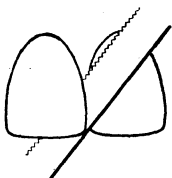


Fig. 1.

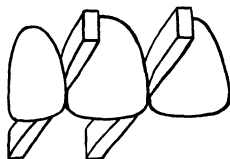


Fig. 2.

Then take a piece of separating rubber and slip a piece down on both sides of the tooth (Fig. 2) and allow it to remain fifteen or twenty minutes. Remove and proceed to band the teeth. When the anterior teeth are very crowded, usually one or two teeth banded to hold the wire arch is sufficient at first. As space is gained more teeth are banded.

As the distal teeth are harder to separate, first pass the ribbon saw down between the teeth to remove tartar, rough edges, etc., then pass down on either side of the teeth a strip of thin rubber dam; allow it to remain over night. Fine working space is thus gained. If immediate separation is desired, follow the same plan outlined in Fig. 3, using heavy separating rubber; allow rubber to remain in position twenty or thirty minutes.

Banding Material. The three best gauges are, 35 heavy, 36 medium and 38 light. When all necessary soldering on a band is finished drop while hot into a sulphuric acid bath and polish with rubber cups and pumice.

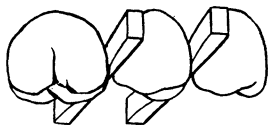


Fig. 3.

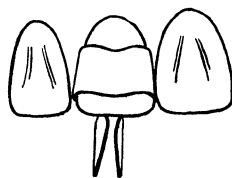


Fig. 4.

To Make Bands for Anterior Teeth. Use flat nose pliers, not serrated or rough; if serrated they will tear the banding material with pinching.

Use a piece of banding material about one and one-half inches long. This makes the ends long enough to hold nicely and still not

interfere with the work. Pass strip around the tooth, burnish quickly on the lingual surface, with the end of the pliers used to pinch the band with (Fig. 4).

Pinch the band on the labial surface of the tooth (Fig. 5). Next solder the band and cut off the soldered end, leaving about one-sixteenth inch, after cementing the band on the tooth, with a sharp-edged stone or fissure bur cut a notch in the remaining short end to rest the wire arch in (Fig. 6).

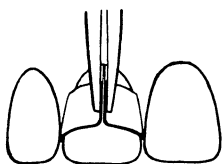


Fig. 5.



Fig. 6.

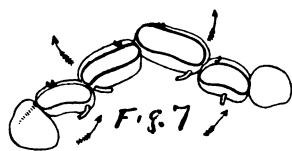


Fig. 7.

If the tooth is to be rotated inward or outward, then the band must be pinched on the side that will favor rotating the tooth; then when the notch is cut in the solder will greatly assist in the rotation of the tooth (Fig. 7).

To secure anchorage for rotating a tooth with the wire arch, pinch the band to one side according to the direction the tooth is to be rotated (Fig. 8) and solder a spur, 21 gauge wire, on opposite angle of the band (lingual surface). Solder this spur near the gingival edge of the band and slant the wire toward the opposite side of the band (Fig. 9). Cut the spur off short, about one millimeter. If too long it will irritate the tongue.



Fig. 8.



Fig. 9.



Fig. 10.

To make a band for the cuspid tooth, on account of its inverted V-shape, partially burnish, then pinch together, remove and solder (Fig. 10).

Try the band on again and pinch up the surplus on the mesio and disto lingual angles (Fig. 11). Flow solder in the pinched parts and cut off and polish when ready to cement on.

Soldering Bands. When making bands use care and pinch the ends carefully so as to secure a square joint (Fig. 12). The solder will flow across nicely then and make a smooth joint. If poorly

pinched, as in Fig. 13, the joint will be poor, the band will fit badly and soon work loose.



Fig. 11.



Fig. 12.



Fig. 13.

To solder a band, cut the ends off, leaving about one-eighth of an inch. This will keep the solder from flowing back, as it will do on longer ends. Wet the joints with a creamy borax, place a small piece of silver solder between the two ends (Fig. 14) and allow the flame to play directly on the joint.

To make the solder flow at once without burning the band, use a very light pair of pliers with the end bent at right angles inward. File the ends so they will come squarely together. Grasp the pinched ends of the band close to the band, holding the solder between the joint (Fig. 15).



Fig. 14.



Fig. 15.

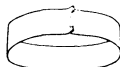


Fig. 16.



Fig. 17.

Allow the flame to play directly on the solder. When soldered, cut off soldered end, leaving about one and one-half millimeters long (Fig. 16). This end is allowed to remain so that a notch can be cut in it so as to hold the wire arch or lever wire (Fig. 17) after the band is cemented on the tooth.

Bands for the Distal Teeth. In banding the distal teeth (or the anterior teeth either, for that matter) gain proper separation between the teeth and then the fitting of the band is made easy. To band a bicuspid or molar take a piece of heavy banding material, 35-inch gauge. Burnish the band to fit the tooth with the ends on the lingual surface, then with the flat-nose pliers slowly pinch the ends together (Fig. 18). Then remove the band and solder the pinched ends. Do not cut off this pinched end until all soldering necessary is finished. Then there is no danger of unsoldering a joint.

Stationary Anchorage. To secure stationary anchorage, band the bicuspid the same as the molar. Slip the molar band on and burnish where the two come together (Fig. 19). Remove and flow a very small piece of solder on the molar band. Then with the right angle

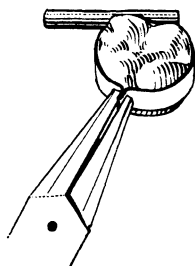


Fig. 18.

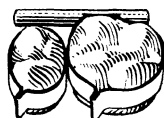


Fig. 19.

pliers hold the bands, as in Fig. 20, and solder. Then try on. Next mark the proper direction for the tubing on the bands and then re-solder the tubing on to the molar band first, then solder to the bicuspid band.

When soldering the tubing on be sure and protect the joint where

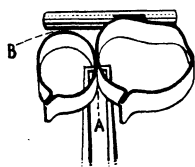


Fig. 20.

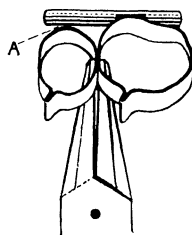


Fig. 21.

the two bands are soldered together with a large pair of pliers to keep from unsoldering the bands (Fig. 21). To eliminate trouble, see that the end of the tubing is not pointed too far in or out, or too high or low. Place on the teeth and try the arch or traction screw on to see if the correct direction has been obtained.

PROSTHETIC DENTISTRY

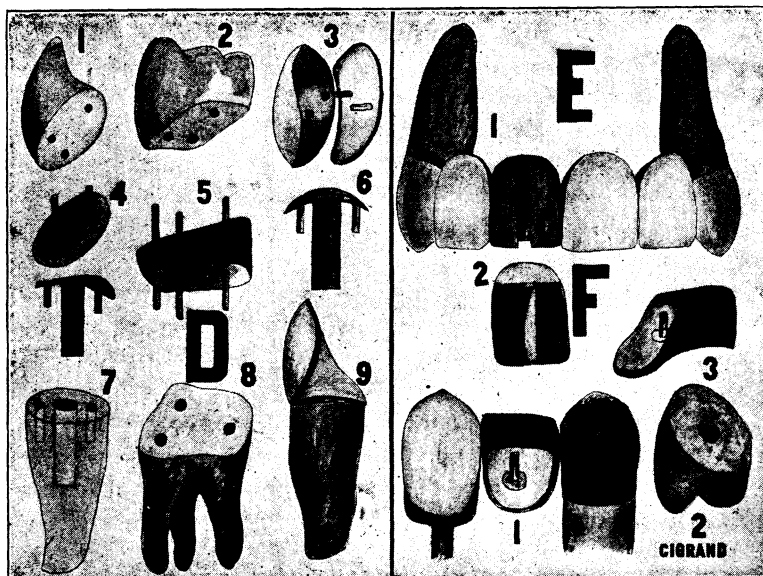
By B. J. Cigrand, B. S., M. S., D. D. S.(Professor of Prosthetic Dentistry and Technics, College of Dentistry,
University of Illinois.)

CHAPTER XXVIII.

The perplexing proposition of anchoring porcelain teeth upon metallic bases without the medium of solder has engaged the consideration of the profession considerably longer than is generally supposed. I find that as early as 1856 a Dr. Harrison mounted a tooth having slots or grooves on its lateral sides into which were fitted metallic stays and that the entire metallic skeleton was constructed and completed with the porcelain tooth eliminated and when all was perfected the porcelain tooth was inserted and held into position by means of cement.

The difficulties growing out of putting the porcelain through the intense heat aside from the likelihood of changing the shade—not color—of the porcelain substitute, are too well known to the average practitioner to require recitation at this time. We all agree that the coming bridge or crown having metal as its foundation, must be hygienic, durable, comfortable and aesthetic. But the anxious question as to how this can be accomplished is the rock upon which many of us will divide. Still the only possible way out of the woods is for some one to proclaim he sees light ahead and believes he can discern the clearings in the distance. The few who make a start in the direction of the opening may be branded as adventurists and false lights, but somehow the world loves to follow so-called adventurists. We will welcome any departure that may bring us to a system which can assure us of the avoidance of soldering cases with porcelain in position. The Harrison case alluded to was very satisfactory and it would be well if we of this day could have the pleasure of selecting such a tooth as he advocated and constructed. In searching the literature on the subject I do not find that any manufacturing house supplied them, hence conclude from letters and other unpublished matter in my possession that he baked the porcelain for each individual case. The fact that his tooth did not become a marketable product does not in the least foreshadow that it lacked merit. In my preceding article I called attention to this Harrison tooth (diagram A, Figs 2 and 3), and because of many inquiries regarding same, I again direct attention to the principle involved. The patent department at Washington has kindly furnished me with diagrams and I am reasonably certain that the Harrison tooth was then fitted into a metal pocket or basket

as he called it and cemented into position. He also advocated the use of sulphur as a means of attachment. The possibilities of this tooth are very clear and it is to be regretted that many of our creditable discoveries and inventions are cast aside because the profession does not interest itself enough to encourage or support the inventor. Such was the case with Dr. Harrison in 1856. The depots must see a profit—they are in the business for gain financially—



hence if an invention, good as it may be, does not get professional trial, support or advocacy, the trades people pass it by as an idle dream. The supply people will give us what we want provided we in turn support them. It is the old ancient fable of the "right and left hand quarrel."

In these next few articles I hope to interest the reader in a closer observance of the various systems now before us and which dispense with soldier anchorage. If any of these methods appeal to you give them a trial before the supply people take them from the shelf and mark them "not in demand."

The Alexander teeth are not yet in the market but they have a future.

Diagram D illustrates Dr. C. L. Alexander's method and it is the first attempt to have the platinum pins in the gold attachment rather than in the porcelain, thus avoiding likelihood of fracture during soldering. The porcelain crowns are cemented into the metal bases and the holes in the crown have complementary metal pins on the

attachment, as Figs. 1, 2 and 3 show. The metal bases are constructed and positioned as shown in Figs. 4, 5 and 6 while the root ends are shaped to receive anchor posts or pins as illustrated in Figs. 7, 8 and 9. This method, though in a far less complete manner, was given to the Southern Dental Society in 1896. I had the pleasure of seeing Dr. Alexander give a very interesting demonstration of this system at the Triunion Dental meeting at Baltimore in 1898. The method seems intricate, but in his hands it proves to be a success, and the cubic form of the porcelain gives evidence of little gold display. The objection which I would make is that he resorts to cement for attaching the porcelain to the metal base, and this certainly cannot give hygienic results, nor can the crown withstand the ravaging influences of the buccal acid or the oral secretions.

Diagram E. In 1896 Dr. Walter C. Mason exhibited his detachable porcelains for individual and assembled cases at the First District Society of New York. The porcelains have a flat back with a three sided platinum bar baked into the tooth so as to fit a similar shaped groove in the metal backing of the case. This system has been advocated as the nearest perfect for reproducing crowns, as it made repair work easy and certain. In the event of a broken veneer a substitute could be fitted as seen in Figs. 1 and 2. The veneers are cemented into position and the bicuspid and molar crowns are porcelain-faced in the same manner. I have given this method a fair trial during the past three years and had hoped the results would be as foreshadowed in the excellent demonstration of its inventor, but I regret to say that the system has not been as complete a success as I desired. These teeth do not fulfill my dream of easy repair work. This method has its great strength in its purpose of making resettings possible without complete destruction of the remainder of the case. The cement attachment is in my estimation but a temporary agent of anchorage. I believe that if the teeth might be made thicker and then fastened to the gold with chloro-rubber and vulcanized, the work would be more permanent.

This is what Dr. Mason has to say of the tooth:

"I will acknowledge that I have never yet repaired a bridge in the mouth to my own satisfaction where the porcelain is soldered to its backing. Is it practical to have a porcelain detachable? It must be, for scores have tried to produce them. Patent records show the efforts made. Up to date none have been invented so that they can be manufactured and sold to the dentist for his immediate use, and, whether they are practical or not. I leave for you to examine the mode of forming and to judge for yourselves.

"In my judgment, a detachable porcelain is just as important to crown and bridge work as crown and bridge work is to dentistry. For a number of years I have been seeking a mode of constructing the porcelains so that they would separate, but have a perfect contact with the backings, and be equal to the facings now in use. Through that effort I have produced a system of dovetails and grooves to match and a process of manufacturing whereby a porcelain is made independent of its backing, so that a porcelain, from one mold, will fit each and every one of the backings made for that size mold, making them universal in their use.

"The advantages gained by this method are many, and can only be appreciated by the practice of it.

"The first advantage, you do not have to place your teeth under the flame of blow-pipe.

"Sceond. You have a solid backing without bubbles, as all parts are drop forged.

"Third. You can heat up your invested piece quickly and not have to take the usual care; you can also cool off quickly.

"Fourth. The small amount of solder used—just enough to join the parts together.

"Fifth. Saving your porcelain from being etched by borax.

"Sixth. You are able to fit a bridge, releasing the strain by cutting and resoldering, and not have the porcelain interfered with.

"Seventh. The most important of all. The amount of time saved to the busy dentist will equal about half of the time spent in the old method, and being free from annoyance in spending part or whole of the day repairing a bridge; with this system the repair is but a matter of a few minutes. If you put a tooth of mold No. 22 on and it should break, you may order an exact duplicate and slip it in position, keeping yourself in a good humor and giving your patient the greatest amount of satisfaction."

In diagram F we have the Townsend method and it contemplates the setting of the porcelain in small shells or cuts as illustrated and cementing them into position. This system is intended for buccal cases and answers fairly well even in individual crown work. In assembled work the gold cups are made sufficiently strong to protect the porcelain. The criticisms made of diagram E will in a large measure hold true in this system. The main calculation in this method is ready repair work and incidentally the restoration of the lingual contour, as shown in Figs. 1 and 2. Simplicity of construction is its strong feature.

(To be continued.)

DENTAL THERAPEUTICS

(By Geo. W. Cook, B. S., D. D. S., Chicago, Ill., Professor of Bacteriology and Pathology, University of Illinois, Professor of Oral Surgery, Dearborn Medical College.)

CHAPTER XXIX.

In the discussion of the subject pertaining to therapeutic agents we have recognized many important features with reference to the action of certain agents in the body, and in one sense the study of medicinal agents and their effects upon the body is in a sense a study of physiological chemistry. In former times, and up to the present we might say, it has been the custom to classify therapeutic agents as acting upon one particular organ or tissue of the body, and but little has been done by the great mass of medical men with the pharmacological action of drugs, consequently, it has been the custom to put as many medicinal agents together in a prescription as could consistently be done without making a so-called incompatible combination. And those thus prescribing and compounding have had practically no fundamental knowledge of the true physiology or pathological lesions for which they were treating, and have never taken into consideration the fact that the incompatibility of these agents must depend upon the fluids of the body, and especially the saliva, which these agents first come in contact with; or the gastric juice, or the intestinal contents. An agent that goes into solution in these substances might form a very different chemical compound than it would if it was dissolved in water, therefore the study and the rational therapeutics must depend upon a particular kind of medicinal agent introduced into the body, and not upon a great mass of different chemical substance of which they look to the incompatibility of each in water. And one of the important agents, when introduced into the body, is in itself an inert body, but upon its immediate introduction and especially if it manifests itself in certain symptoms, it shows that this agent has been acted upon by certain fluids, thus producing certain chemical agents in the stomach contents, which manifests itself in such a way as to show that this inert body has been changed and the substance formed from such a chain acts upon the body. We have reference here to sulphur.

The ordinary sulphides which are formed in the alkali series are

of but little importance here, for the simple fact that they are but little used in therapeutics. Many of the sulphides are weak salts, but when they come in contact with an agent like carbonic acid they are capable of breaking up and forming a hydrosulphuric acid, which, when coming in contact with certain other physiological fluids, has a tendency to break up and form a free acid, which in the majority of instances acts as a strong local irritant. Therefore, the sulphides act as irritants when introduced into the stomach and bowels, and in the great majority of cases they act upon the intestinal tract in a way that increases paristalsis because of their irritating effects. Harnack has shown that when sodium sulphide is injected subcutaneously into the frog it produces a narcotic condition, which is due to depression of the central nervous system, and if the quantity is sufficient causes weakness of the heart and skeletal muscles; the heart will continue to beat long after the skeletal muscles are completely paralyzed. The same observer showed that if the doses were not large enough to cause death and the animals were kept in a cool place, there would be an increase in reflex irritability; and in some instances the convulsions were very much like those of strychnine poisoning, with perhaps this difference, that the animal sometimes lived months in this intensely irritable condition.

In experiments on the mammalian, sulphides injected intravenously induced a violent convulsive manifestation, which indicated that they were of cerebral origin, the respirations are increased gradually slowing, and finally ceases to further carry on the functions, which is due perhaps to the paralysis of the vasomotor center. This is followed by death. The effect the sulphides have upon the heart's action is probably due to decreased respiration, which is followed by the fall of blood pressure.

When the sulphides are added to drawn blood they bring about a certain chemical change by acting on the oxyhaemoglobin, which changes the color of the blood from light red dark, which has the appearance of venous blood. When the sulphides are absorbed by the blood they change very rapidly by process of oxidation, and are excreted usually in the urine in the form of sulphates and of organic sulphur, compound the chemical constituents of which is practically unknown. It may be said here, however, that small quantities of the sulphides escape in the exhalation from the lungs in the form of sulphuretted hydrogen, which in some instances might partially

account for the disagreeable breath so common with some people.

The sulphides have a tendency to dissolve the horn epithelium and certain hair follicles when applied to the skin, but if the application is made very frequent it will produce considerable irritation, which will result in inflammation.

Hydrosulphuric acid, (sulphuretted hydrogen and hydrogen sulphide [H_2S]). These compounds usually exist as gas, consequently, differ from the sulphides of the alkaline series. These gases are extremely irritating and frequently give rise to very poisonous symptoms, and especially is this true in the presence of putrefactive changes in organic matter, especially where the decomposition is a proteid material. The common acceptance of the term of these gases, ordinary sewer-gas, if inhaled in a concentrated form it causes death. If small quantities are inhaled for some considerable time it causes unconsciousness, a state in which the individual will remain for several hours and eventually pass into a comatous state, a condition in which they may remain for a considerable time with occasional convulsive seizures. These symptoms are said to be due to the direct action of the sulphide gases on the brain and the medulla.

When individuals are exposed to sulphuretted hydrogen in a weak form there is produced local irritation to the nose and throat and if continued for some time causes pain, inflammation of the conjunctiva, dryness of mouth and throat, increase of tears and saliva. In the hydrosulphuric acid one part in 5,000 of air is sufficient to induce symptoms in a man, and if inhaled for any length of time will produce very decided symptoms. The poisonous effects of sulphuretted hydrogen is due principally to its local irritating powers, and when continued for some little time produces certain effects on the central nervous system. The hydrogen sulphide may be said to be very poisonous to all forms of living substance. However, this phase of the subject is of but little importance in this connection.

The various compounds of sulphur, such as we have previously mentioned, are of but little importance in dental therapeutics. It is well in this connection to mention the sulphites, a group of bodies that have some advocates in therapeutic use, but really it is a question whether they play any very important part as a therapeutic agent. It has been shown that they have a more poisonous

action than many of the other better known salts. The sulphites have gained some reputation for having some strong antiseptic properties. This conclusion was drawn, however, because of the fact that in the living tissue or tissue undergoing pathological changes, these sulphites would extract from the tissue oxygen, which caused oxidation of the sulphites into sulphates, a condition in which all sulphur compounds, as we have previously said, is eliminated from the body.

It has been observed that 96 per cent of the sulphites taken in to the circulating blood is changed to sulphates, and is excreted as such, while there are about 3 per cent that pass off as sulphites. Especially is this true when large quantities of sulphites have been administered into animals. It has been observed that in man from 30 to 40 gms. can be administered in 24 hours without producing any very large symptoms. The intravenous injection of the sulphites show that the red blood corpuscles are usually destroyed and they produce an infraction, and in this way produces hemorrhagic conditions, which is so commonly manifested where considerable of the sulphites have been administered. Symptoms of gastric intestinal irritation have been shown to occasionally follow very minute doses of the sulphites when administered by way of the stomach. And for this reason the practice that has so frequently followed the use of sulphites to preserve meat, wine and vegetables, should be discouraged, for the reason that many people are easily affected by certain substances containing certain sulphites.

The three compounds that are usually used for medicinal purposes are the following: Sodii Sulphis (U. S. P., B. P.) ($\text{Na}_2\text{SO}_3 \cdot 7\text{H}_2\text{O}$), Sodii Bisulphis (U. S. P.) (NaHSO_3), Sodii Hypo-sulphis (U. S. P.) ($\text{Na}_2\text{O}_3 + 5\text{H}_2\text{O}$). This first named salt is easily oxidized into sulphates when brought in contact with the oxygen of the air, and is quite decidedly alkaline in its reaction. The second one of these salts has a disagreeable sulphurous acid odor and is acid in reaction with a very unpleasant taste. The last named of these salts is a thiosulphate of sodium; has a cooling sensation to the mucous membrane and is neutral in reaction. The first and last named of these salts are frequently administered internally to prevent the absorption of bacteria from pus formation, or in other words, to keep the blood in an aseptic condition. Many who lay claim to special knowledge in dental therapeutics recommend the

compounds, sodium sulphites and sodium hyposulphites, in cases of alveolar abscesses and other suppurative processes about the teeth and jaws, but it is a pretty thoroughly demonstrated fact now that this has no special beneficial effects but on the other hand subjects the kidneys and other excretory organs to a greater amount of work in eliminating the sulphates from the body.

I might briefly detail here some experiments that were carried on by Dr. Brown and myself some years ago in producing suppurative inflammation in animals, and then treating them with these compounds to see what possible effects might be produced in such conditions. We found that when administered by way of the stomach that the increased quantity of sulphates corresponded with the quantities administered without any appreciable effect upon the suppurative process. If these compounds were intravenously injected they really increased the infected area by causing small nodulary formations within the living tissue near the area of suppuration, and eventually resulted in the farther breaking down of the tissue which seemingly would not have happened and which proved in control animals did not happen, when the sulphites were not administered. The work herein detailed showed conclusively that the sulphites administered by way of stomach had but little if any influence on the local suppurative process, and if there was any influence it simply produced the effects of allaying the reactivity of the tissue to a bacterial effect, thus producing the possibilities of increased infection. With these facts before us and the experiments detailed by Pfeifer in the (*Arch. of Experimental Pharmacology Pathology*, vol. 27) will show that the much relied on theory of the benefits of sulphites, sodium and other forms of sulphites, are probably of no benefit in local suppurative conditions.

(To be continued.)

OPERATIVE DENTISTRY

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CHAPTER XXX.

HAND PRESSURE AND MALLETING.

The introduction of gold into a cavity after the latter has been properly prepared requires a delicacy of skill that can only be acquired by considerable technical knowledge and practical experience, together with a knowledge of the peculiarities of gold in the various forms in which it is prepared for dentists' use.

It has been said that an experienced and skillful operator can pack a gold-filling with a broken nail. He certainly could adapt himself to peculiar and varying circumstances and conditions, if obliged to, better than one less experienced, but it will be observed that, as a rule, the more skillful an operator has become the better he provides himself with instruments specially made and adapted to the different phases of his work.

A broken *instrument* has often been found to serve a very good purpose as a plugger, the broken surface acting as a good substitute for fine servations.

The placing of gold into a cavity is done both with pliers made for the purpose, and the plugger point selected for the work to be done. Hand pressure should almost invariably be applied in seating and condensing the gold until the piece is well laid where it is desired, when malleting may be used to complete the condensation.

In large, open cavities with free access and after the filling is well started, also when gold has been built out beyond the cavity confines, the seating and partial condensing by hand pressure may not in all cases be indicated; but, as a rule, hand pressure insures more accuracy in working the gold to the exact place desired. Malleting, and especially automatic malleting, on account of the manner of getting the blow frequently seats the gold quite differently from what was intended and balks the calculations of the operator; especially when continued through the entire building of a filling.

Malleting in gold fillings in some manner is an almost universal practice, but there are operators who do decidedly creditable and eminently satisfactory work by hand pressure alone, though the greatest amount of density cannot be obtained.

Hand pressure should be done, generally, with a little rocking motion simultaneously with the forward force. An expert is able, often, by this rocking motion to work his plugger over the entire

surface to be condensed without lifting, or lifting only occasionally. This may be done with greater ease where the gold is in thin strips or folds than when in thicker rolls or pellets. There is no better way to make a dense, perfect filling, even in solidity all through, and with no interstices of even a minute order than laying on the gold in thin, flat ribbons, folds or pieces; and some operators who have attained a reputation of making the highest order of gold fillings use only the flat, even-folded pieces carefully annealed, carefully laid, and carefully condensed, whether by hand or mallet or by both.

With hand pressure one may exercise a lateral force at will, bringing the gold tight to the wall as pressure is exerted axially at the same time, while a mallet blow being a quick and sudden impulse has only the axial direction. This refers more especially to the automatic.

Hand malleting and automatic malleting are two ways more universally used than any other in malleting in gold fillings; there are, however, a lot of operators using the electric, the pneumatic and the engine mallet and demonstrating that excellent work may so be done with greater ease and with much saving of time to both patient and operator. In such cases the assistant, instead of manipulating the mallet, feeds the gold in under the rapid blows of the plugger points.

The electric mallet has many enthusiastic advocates and well deserves it and the same may be said of the pneumatic. The electric mallet projects its blows with lightning rapidity, and unless an operator understands and manipulates his points with due consideration of the number of blows delivered, over malleting may be done.

The pneumatic and the engine mallet deliver blows with a rapidity varying with the speed of the engine to which they are attached, never delivering a hundredth part of the blows delivered by an electric plugger in the same time, but still very rapid.

With any of these machine mallets, delivering rapid blows, better work may be done with gold in thin, flat piece than with bulky pellets and ropes because the plugger point should be kept moving and may be carried easier over a smooth, thin piece of gold than over a thick roll or crumpled piece.

Usually an operator who uses an assistant employs hand malleting. Some operators manage to do hand malleting alone, which, of course, employs both hands, and, of course, in many situations it is very difficult, or quite impossible to do, and in consequence most

operators not employing an assistant resort to the use of the automatic mallet, which is of valued importance.

It, however, has serious faults, the greatest being that it requires a certain amount of pressure on the plugger point to work the trip-hammer action which eventually delivers the blow. This effort to push back a spring until it trips, bringing the hammer down, interferes with the control of the plugger point, so that it often slips before the blow is struck, or at the same instant, so that the operator has not done exactly as he intended, with the result that fillings are often failures in one way and another. And further, the operation is necessarily slow, there being at best considerable interval between the strokes, and the force of the strokes can only be regulated by adjusting a regulating screw; and this, it can readily be seen, is practical to regulate a series of strokes, and not each stroke at will.

With an electric, a pneumatic or engine mallet that do not get blows by pressing on the plugger point, the blows may be regulated a good deal by adjusting the nearness of the point to, or a little from the gold, as the blows are being delivered; holding the point close down for a hard blow and farther away for a lighter blow. There are fixed adjusters to these mallets for delivering a series of blows, all light, or all heavy, as may be desired at the will of the operator.

Personal preference has much to do with the kind of mallet to be used, since one operator can work well with one that another cannot handle satisfactorily, and still, there are fundamental principles concerning mallets that cannot be entirely ignored.

In hand mallets some operators prefer one of light weight, while others prefer one very heavy compared with the first. If a light weight is used the blow delivered must necessarily be heavier or harder to accomplish condensation than with a mallet whose weight would give the necessary force. There is no mallet in use that can give a wider range of service than the hand mallet when one has a skilled assistant to manipulate it, who is guided by a word, a motion or nod of the operator when to begin, when to cease and even the character of the blows the operator desires; and yet the mallet that comes nearest to the ideal in condensing gold is the rapid electric mallet, which, however, has its limitations; and next to this comes the pneumatic mallet attached to our engine, the pneumatic being available when an electric current cannot readily be secured, and is not so liable to get out of order with the average operator as the delicately adjusted electric.

(To be continued.)

ORIGINAL CONTRIBUTIONS

TOOTHsome TOPICS.

By R. B. Tuller.

Geezer.

What's a geezer?

Why, a geezer is a geezer. Funny you don't know.

For, one day, as you were passing, a friend said, "Look at that geezer, will you!" and I looked to satisfy myself what a geezer was.

Then, again, as you got up in meeting one evening, I heard a man remark, "Now, what's that *wise* geezer going to deliver himself of?"

Wise geezer! Geezer may be quite appropriate, but *wise*—no, not you.

Your speech does not indicate it; and there is no phrenological indication.

Yours is no two-story frontal. On the contrary, it reminds one of a low summer shack, with an overhanging thatch.

Now, geyser, I should say, would possibly be more appropriate for you; for you have periods of boiling up and blowing with a good deal of a sulphurous sort of vapor.

But, don't worry, man; you are not classed as a dangerous geyser. You don't shoot high; but you intermit frequently.

However, I guess you are just an ordinary geezer—not even from Geck.

A logical presumption is, that a geezer is a man who geezes—whatever that is.

As near as I can figure it out, that time you were arrested, it was for geezing—goo-goo geezing.

You made a regular goo-goo geeze towards a pretty girl on the street, and she told her troubles to a policeman, and you were fined \$200 and costs. Anyway, you were a geezer.

I suppose there are all sorts of geezers. Poets even taken them up. Here is a *touching* limerick about one:

There was a geezer from Gump,
Who sat himself down on a stump;
But a resident bee
Thought his action too free,
And the geezer got up with a jump.

This stump, I am told, was on Don Gallie's lot at Willmette. Who was the geezer? Don says he can prove an alibi—though he walked for a while with a cane.

Not long ago a geezer said to me, "When are you going to write me up in your Topics?" Well, I'll be ding goozled! Up to this time I thought I was a pretty good amateur photographer.

Why, man, can't you recognize yourself? *You* are the fellow that bends his elbow and crooks his little finger. I saw you not long ago doing that and looking in a mirror to see if your pose was correct.

Oh, yes, you caught sight of me at the same time; but *I* was eating an olive.

Yes, and you are the geezer that takes tainted money. I saw you take some that you knew was tainted. You saw it come direct from the till of a wet goods man. Shame!

You are the kind of a geezer, too, that will take ten dollars for a rubber plate, when you know that up the street a little way, they make 'em for five.

You are also the geezer that will take eight, and up, for gold or porcelain crowns, when Dental Parlors will do them for two up. And do you ever inquire how your patients' money was made or earned?

I am inclined to believe you would give your professional services to a barkeep or a bookmaker and take his money.

And I'm not so sure that you wouldn't try to convince the latter that his books weren't made right by trying to pick a winner that would pay you ten tainted to one of your sanitary wad.

I believe, too, you would go to church (!!) the next Sunday—or let some of your family—and drop in a nickel of that same tainted stuff and never let on—imposing on the innocent church!

I have reason to think, too, that if you had a quarter stuck on to you with a hole in it, you would gum the hole, rub dirt on it, and try to shove it again.

Great guns! do you want me to print a half-tone engraving of you, with your autograph attached and say, "Here's the geezer you've all been reading about"?

I'm sorry, my dear sir, but I can't do it. It would take more pages than the *American* has to spare for a year to satisfy the clamor of the other geezers who would accuse us of partiality.

I may, however, do *this*: Compile the Topics into a bound vol-

ume at \$1.50 per, and put every geezer's portrait in it (at \$10.00 per) if he's been painted, with reference notes to the pages where he has been *alluded at*.

In case I go into this, the front picture, done in tints, will go to the geezer who has been *alluded at* most; provided he'll pay \$50.00 in advance.

You have as good a show as anyone—if you have some of that—well I won't ask any questions about the pedigree of the girl on the dollar.

Oh, I'll take it, and geezer money, too. Geezer money looks good to me, and I don't think I'm called upon to go behind the geezer to trace where it came from.

This, "What's a geezer"? is a good deal like the conundrum, "Why is a gook"? The answer is, "It's up to you. Go chase yourself."

A geezer, a competitor of mine editorially, and publisher of—well, nothing much—asked me if I would not give him some of my "stuff" of the Topics order, saying, "There isn't anything to it, but I'm willing to pay for it to help fill up."

Well, I'll be jiggered! To what dizzy heights of fame have I flown! Here's a geezer willing to pay me to help pad out his commonplace journal with more commonplace material. He does not seem to be aware that I am now getting a princely salary, not for my lines, but for what is between then; and the wider the space between the more money I get, and this padding to him would be expensive. If he could *read* between the lines it might be worth the money. This article alone comes to over one hundred dollars, and I'll bet ten to one he can't see it.

However, if he has the money, and it's sanitary, I am open to negotiations.

What's a geezer, anyway?

Toothsome Topics every month.

SELECTIONS

*** NORMAN WILLIAM KINGSLEY, M D. S., D. D. S.**

From the History of Dentistry in the State of New York.

Norman William Kingsley, M. D. S., D. D. S., of New York City, was born in St. Lawrence county, New York, October 26, 1829, and is a son of Nathaniel and Eliza (Williams) Kingsley. He was married in 1850 to Miss Alma W. Shepard, daughter of the Rev. Silas E. Shepard, of Troy, Pennsylvania. The first ancestor of the name of Kinglsey was Ranulph, a Saxon, appointed in the reign of Henry II. of England (1166) keeper of the forest of De-la-Mere, and from the king's lea upon which he lived the family took its name. A descendant, John Kingsley, emigrated to America, landed at Dorchester, Massachusetts in 1634. A descendant of the English branch of the family was the celebrated author, Charles Kingsley, Canon of Westminster, who died in 1875.

Amos Kingsley of the fourth generation in this country was a tanner in Windham county, Connecticut, and five generations after him followed the same occupation, first in Berkshire county, Massachusetts, then in Rutland county, Vermont, and now in Tioga county, Pennsylvania. Nathaniel Kingsley, born in Pittsford, Vermont, removed to St. Lawrence county, New York, where Norman was born, but after a few years returned to his native place, and in 1842 removed to Troy, Pennsylvania, and lived upon a farm. Norman received his education in the Troy academy and at fifteen years of age was a clerk in a store in Elmira, New York, upon a salary of one dollar per week and his board, where he remained over three years. Subsequently he became a student of dentistry under his uncle, Dr. A. W. Kingsley, of Elizabeth, New Jersey. In October, 1850, he began practice in Owego, New York, and in May, 1852, became a partner of Dr. Solyman Brown, of Washington Square, New York City. Dr. Brown was a man of distinction in his day; a graduate of Yale, an author, editor, artist and poet of no mean ability. Dr. Brown was attracted to Dr. Kingsley by some carved porcelain block teeth mounted on gold, which the latter had made, and which he regarded as superior to anything he had seen.

*See Frontispiece.

Dr. Kingsley was awarded the highest prize at the world's fair, held in the Crystal Palace, New York, in 1853, for the best imitation of natural teeth carved in porcelain. He also received the first prize at the Paris exposition in 1855, and like awards in other place where he exhibited. In that day it was not considered unethical for a dentist to display in competition examples of his methods and skill. In 1864 he went abroad, and was received with distinction by the medical and surgical societies and the Odontological Society of London, and in Paris by the French Academy of Medicine, before each of which he read essays. In 1865 he returned to New York, and in that and the following year organized the New York College of Dentistry, of which he was Dean and Professor of Dental Art and Mechanism for three years. In 1867 he published a series of monographs, entitled "Dentistry as a Fine Art." He was one of the founders of the New York State Dental Society in 1868, and twice president of the same. He was president of the New York State Board of Dental Censors for sixteen years, and formerly a member and president of the First District Dental Society and of the New York Odontological Society. He is an honorary member of the American Dental Society of Europe, the Odonto-Chirurgical Society of Scotland, the Odontographic Society of Philadelphia, the International Medical Congress (London, 1881), and many others. At the instance of the New York Dental Society, Dr. Kingsley went unaided and alone to the state legislature and secured the passage of the law exempting dentists of New York City from jury duty.

His world-wide renown in the treatment of congenital cleft palate for the cure of defective speech began in 1859. A gold medal was awarded him by the American Dental Convention at Saratoga in 1863, and another gold medal by the Odontographic Society of Pennsylvania the same year. The Baltimore Dental College conferred upon him a special degree for "Scientific investigation of congenital deficiencies of the palate and by the application of a very remarkable artistic skill to the artificial replacement of the same, has demonstrated the high capabilities of dental art and has rendered invaluable service to this unfortunate class of sufferers." This appliance was unique and original with Dr. Kingsley, and has perfected the speech of many people all over the world. Before the Odontological Society of London, in 1864, Sir William Pollock, surgeon-in-chief to St. George's Hospital, said: "As one who takes some

interest in the question of congenital cleft palate, I consider it my duty to rise to pay my tribute of respect and admiration to Dr. Kingsley for the very eminently practical and ingenious apparatus which he has brought before us this evening. I look upon it as one of a series of those very great improvements that have come from the other side of the Atlantic, which have conferred so much benefit on mankind." At a meeting of the French Academy of Medicine, in 1865, M. Nelaton, the most distinguished surgeon of his generation, said: "I want to congratulate Dr. Kingsley on having succeeded, where surgery has heretofore failed. It is a coincident fact that the first operation upon a cleft palate was done by a French dentist, but it has been left for an American dentist to discover a means whereby the speech of these unfortunate people can be benefitted and they are no longer deprived of social intercourse."

Dr. Kingsley became practically identified with orthodontia in the earliest years of his practice, his first contribution to any journal being in 1857 on that subject. From 1872 to 1876 he undertook an extensive investigation into the causes of such irregularities, in the pursuit of which he made personal examinations of thousands of children in public schools, asylums and other institutions in this country and Europe. His monograph on that subject, read before the New York Odontological Society, was subsequently embodied in his "Treatise on Oral Deformities," published by the Appletons in 1880. This work was mainly devoted to orthodontia and cleft palate appliances, and was translated into German, his teachings upon those subjects forming the basis of all subsequent writings. But while the doctor is an enthusiast in the two specialties described, he is not to be regarded as only a specialist. No patient who ever went to him with a trouble that dentistry could remedy was sent away by being told: "That is not in my line." To him dentistry is not so vast a field that one person cannot master the whole of it.

During this period the conservation of the teeth as an art had reached its highest attainment. The living organs, when decayed, could be restored and their usefulness prolonged indefinitely, but frequently at the expense of their beauty. Esthetics was entirely ignored and broken down teeth were further disfigured by the display of gold in violation of all good taste. During the last decade of the nineteenth century, Dr. Jenkins, of Dresden, brought forward his "Porcelain Enamel," and Dr. Kingsley, who was his intimate friend,

became its ardent disciple and was one of the first to introduce it into America.

In his more than half a century of active practice he originated many of the methods now in common use, particularly in orthodontia. He invented and patented in 1866 the first portable gas blow pipe, and none of the modifications or alleged improvements which have appeared since, equal the original invention. Dr. Kingsley is a many-sided man; as a lecturer, an author, a dental surgeon, and an artist, he has been called "The Admirable Crichton" of the dental profession. As a public speaker he is fluent, forcible and aggressively earnest in advocating any cause which he may espouse. As an author his writings are classic, and as an artist he was self-taught in every branch which he undertook. In his childhood in Vermont, before he was ten years of age, he was whittling out miniature saw mills, to be run by the water from an adjacent rivulet. While in a store in Elmira he picked up, without previous instruction or knowledge, wood and copperplate engraving which was done so skilfully that he achieved the distinction of being described in the local newspaper as a "genius" and a "progidy." This incident reveals very clearly traits in the character of the boy as developed in the sixty years that followed. He was never more contented than when doing something with his fingers. He embellished the store ledge with fancy lettering. He had a fondness for art, but the opportunities for gratification in the country at that time were exceedingly limited. He could understand how a painter with colors and a brush could produce a picture, but how pictorial effects could be obtained by engraving was incomprehensible, and, therefore, a picture made from a copper plate required, in his estimation, a higher order of talent than the painter's. He also had the self-reliance which told him that anything that any one could do with his fingers he could do. When, therefore, he saw the print of a seal which was engraved by a fellow townsman on copper for a local lodge which represented a military encampment, immediately that engraver was exalted to the gods in his eyes, and he had the ambition to do one like it, although at the time he was in such ignorance of the technique that he did not know the simplest rudiments, not even what a burin was. Nevertheless he borrowed one from a jeweler and with a piece of copper obtained from a tin shop he assayed to engrave a seal for the club which the boys had established. After one or two failures, he was gratified by being told that

it was fully equal to the one that had excited his ambition. While a student with his uncle in Elizabeth he made a portrait bust of his preceptor, carving it out of plaster, not knowing at the time that the sculptor made his initiative in a more plastic material. After that he took up as an avocation modeling in clay and executed numerous bas-reliefs and full figures, both portrait and ideal in marble and bronze. An idealized portrait in marble, modeled in 1861, called "The Evening Star," has been very much admired. In 1868 he produced in marble a bust of the Saviour, which has commanded universal admiration from the critics and the public. Of it the *New York Observer* said: "Viewed as a work of art had it been produced by any of the distinguished sculptors of our own or foreign countries, it would challenge the admiration of the critical, but it is certainly more extraordinary that such a splendid production should come from the hands of one who has never pursued the art except as a pastime. * * * It is a serene and majestic head, with all that is grand, and nothing that is hard; with all that is tender, and nothing that is weak. It impresses the beholder with a profound sense of the two great elements which blend so beautifully in the man Christ Jesus—strength and tenderness."—Rev. Dr. E. P. Rogers. A steel engraving of this head forms the frontispiece of Dr. Howard Crosby's "Life of Christ." One of his best portraits is a bronze bust of the Hon. Whitelaw Reid, editor of the *New York Tribune* and twice Ambassador to England. This was presented to the Lotus Club, of which Mr. Reid was then President, and Dr. Kingsley, one of the Directors.

In later years he invented a modification of the blow-pipe, patented in 1866, and with its flame, which could be graduated to the delicacy of a camel-hair pencil, he could produce by burning on wood all the varying shades from a faint sepia to a coal black tint, and in this manner he has made quite a gallery of copies of Rembrandt's works, principally portraits, of which it has been said by artists that they better represent the characteristics of Rembrandt than has been accomplished with any other medium. The process, which is unique, is not to be confounded with pyrography or *poker work*, as it is sometimes called.

In April, 1900, he was recipient of a banquet tendered him by his colleagues in commemoration of the completion of his half century of dental practice. Prominent men from nearly a dozen

states journeyed to the metropolis to share the honor of doing homage to Dr. Kingsley. The after-dinner speakers vied with one another to express their admiration for this many-sided man. The menu was a fitting souvenir of the occasion, being embellished with copies of Dr. Kingsley's Rembrandt reproductions, of his bust of the Saviour, and of a speaking likeness of himself, which he had made in bas-relief.

New York State has produced many of the pioneers and leaders in dentistry, but it is safe to say that no one of them all has done so much as has Dr. Kingsley for the real elevation of his profession. By his talents he has shown that the highest type of dentist is a composite being; a master mechanic; both an artisan and an artist; a professional man and a scholar; and, above all, a Christian gentleman. And no more fitting epitome of Dr. Kingsley can be phrased than to say that, in his own life, he has embodied all of these.—*By R. Ottolengui, M. D. S.*



SOCIETY PROCEEDINGS

A CORRECTION.

The article on page 479, in the August issue, "The Gold Inlay," should have been credited to Dr. W. N. Murray, Minneapolis, and the article beginning the second paragraph from bottom on page 483 should have had the heading, "The Gold Inlay," by Dr. J. B. Pherrin.

ROOT CANAL FILLINGS UNDER THE X-RAY.*

DR. GEORGE BROOKS, Greenfield, Iowa.

I have to bring before you this evening simply an experiment. Last September there was sent to each member of the Southwestern Iowa Dental Association, a block of plaster in which were invested five teeth, two lower, and three upper Molars. Each member was requested to fill the canals of the teeth just as he would in his own practice and return them.

Of the fifty sets sent out twenty-four were returned. These were taken out of the plaster and X-ray pictures taken of them. These pictures illustrated a paper which was read at our meeting last October.

Dr. Work requested that the paper be repeated here.

For fear some might think the men in our corner of the state were not as good as the rest, on root canal fillings, I have sent out a number of sets to different parts of the state, which I will also show you.

From among a large number of teeth I selected the number necessary, discarding all which from their outside appearance look to be difficult or impossible to fill, and arranged the rest in sets of five as nearly alike as possible. I think, however, no one should regard this as a competitive test. The outside appearance of the root may be all right, seeming to be straight and having large canals, when in reality the canals may be very small and crooked or be filled with deposits of lime, that may close them entirely. So that, while some may have more canals filled than others, I do not think they should

*Read before the Iowa State Dental Society, Des Moines, May 2, 3, 4, 1905.

claim superior workmanship, for if you had received the set some other member had, you might not have succeeded in filling any.

I hope none of those present who did not receive teeth will say



they could have done better. The object of this test was not to see who could do the best work, but to see what we are all doing. Some will doubtless argue that teeth filled while invested in a plaster block

is not a fair test of what can be done in the mouth. Of this I am not able to say, but in the block, looks the easier to me.

In instructions we read as to how to manipulate certain different kinds of roof filling materials, we so often find these expressions, "Taking care to fill to the apex," or "Taking care to force it to the apex," or "Taking care not to force it beyond the apex," which instructions are good but *very* difficult to follow.

This experiment proves several things to me.

1st. That few molar roots, including all the canals, are filled perfectly.

2d. That there are many canals that it is absolutely impossible to fill.

3d. That there are many canals only partly filled that never make trouble.

4th. That some canals not filled at all, do not make trouble for a long time, if ever.

5th. Canals that are filled by deposits of lime often do not make any trouble.

6th. That any of the above conditions may make serious trouble at any time.

7th. Canals filled perfectly never make any trouble so far as we know. We seldom know when they are filled perfectly.

8th. Canals filled with cotton and antiseptics *only*, invariably cause abscesses in from six months to eight years, generally in less than three years.

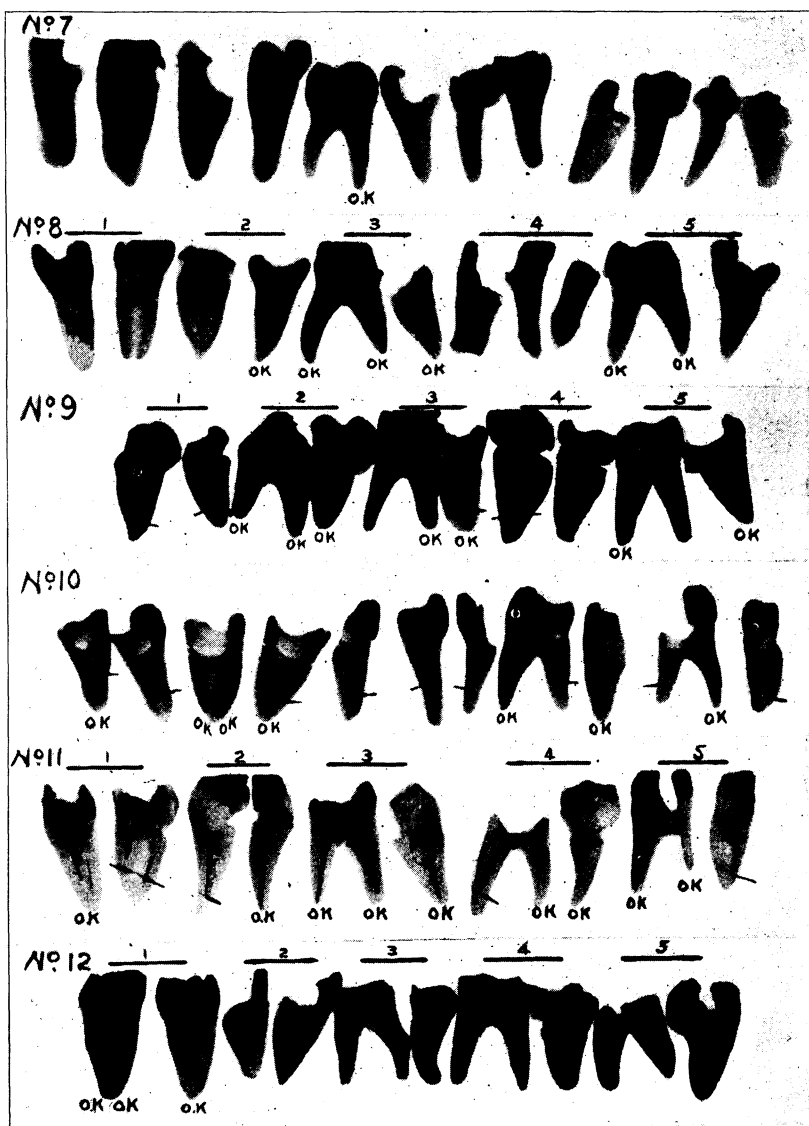
9th. Antiseptics used in canals in connection with other filling material such as guttapercha, oxpara, oxid of zinc, etc., help to render the canals aseptic at the time and to keep them so for longer or shorter periods, but eventually the success of the filling depends entirely upon the other materials used.

10th. The only perfect root canal filling is one that fills all of the canal to the apex with some material that is impervious to moisture, be it metal, guttapercha, cement or what not. Antiseptics cannot be relied on for any definite period.

I have not had enough experience with Oxpara, Ab-kon-ker, Pustuline and like preparations to know their real place and value, but they will not change the statement just made.

We admit that it is impossible to fill many canals, and many more only partially.

Antiseptics are only temporary and other material is much more difficult to get into the canals.



What shall we do?

First acquire as much manipulative skill as possible, so that the

number of canals that it is impossible for us to fill will be the minimum. This skill depends largely on the eyes in our fingers. These must be sensitive enough to see all there is *to see in a canal*.

Every kind of work that tends to thicken the skin or dull the nerves of sensation in the thumb, first and second fingers of the right hand should be avoided. You should impress this idea so thoroughly on the mind of your wife, that if she requests you to get in wood or coal, mow the lawn or perform any work of this nature, you have an excellent and always sufficient excuse in that it will seriously impair your capacity for dental work.

I expect criticism on parts of this paper. I hope it will bring out general discussion. I know many of you are using antiseptics in root canals in various ways. These look all right in the canals when you cut them open and in the pictures I shall show you. But I wish I could show you the dozens of abscesses I have seen on the roots of teeth filled with cotton and antiseptics.

I wish to thank the members of this association for their generous assistance in preparing these teeth. I shall be glad if some member will try the same experiment next year, that we may note our progress.

I am also very much indebted to Audry Howe, of Greenfield, for most of the work in making the pictures.

I will now proceed, with the aid of the lantern, to show you our mistakes and shortcomings.

No. 1. Shows eight roots of lower molars filled perfectly. They are prepared to show how they should look when filled perfectly. They were prepared without being invested in anything, and were all that I secured out of about twenty attempted.

No. 2. Has sixteen canals, none filled to the apex. Only two more than half way. Six holes through roots in various places. Oxpara, capped with petroid cement was used for filling material. I think this operator may expect lots of abscesses in a year or two.

No. 3. Has sixteen canals. Two to apex. Hole through mesial root of No. 1. Some cement, probably Oxpara.

No. 4. Has sixteen canals. None filled to apex. Clorapercha and guttapercha points were used.

No. 5. Has seventeen canals. Eight to apex. One broach. Antiseptic cement and G. P. P. were used.

No. 6. Fifteen canals. Three to apex. One broach. One hole in root. Oil of eucalyptus and G. P. cones were used. Broach in first root of second tooth.

No. 7. Has fifteen canals. One to apex. One tooth not attempted. Clorapercha and guttapercha points were used.

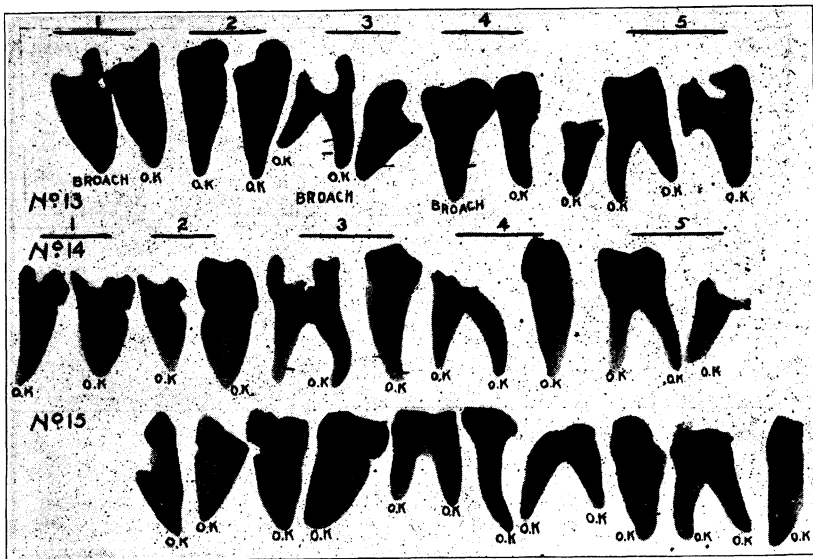
No. 8. Has fifteen canals. Seven to apex. No. 5 filled almost to apex,

but canal wide and flat, apparently. chloropercha may have been used and guttaprecha points.

No. 11. Has fourteen canals. Nine filled to apex. One broach. Chloropercha and G. P. P., except No. 4, in which Oxpara was used. Oxpara was manipulated well. Broach in 4th tooth. Notice the appearance of filling in the first and last root of third tooth in this set, showing exact condition in root and showing that it is not compact enough. In a number of the teeth of the different sets you will notice roots marked O. K., in which you can see no filling at the apex. These teeth have all been sawed, and in each case so marked. Chlorapercha was found at the apex, but it is not dense enough to cast a shadow in the picture.

third canal has a copper point. No. 5 is filled with Formapercha and G. P. cones. Two filled with copper points. One-half of second tooth and fifth one.

No. 13. The operator has used a number of different things. In No. 1



is Eucalyptus and G. P. cones. In No. 2 is Oil of Cloves and Sub-Nitrate of Bismuth colored. In No. 3 copper points, also a broach. In No. 4 one canal, with S. N. Bismuth and G. P. cones. One Oil of Cloves, S. N. B., and the third canal has a copper point. No. 5 is filled with Formapercha and G. P. cones. Fourteen canals, eleven to the apex, and two broaches.

No. 14. Has fourteen canals. Twelve to the apex. Clorapercha and G. P. points were used.

No. 15. Has fourteen canals. Fourteen to apex. Clorapercha and Guttapercha points were used. This set was *very* carefully sawed and Clorapercha was found at the apex of every canal.

Of the 375 teeth sent out, 185 have been returned. These had 560 canals, of which 41, for various reasons, were not attempted; 519 were attempted; 184 were filled to the apex.

There were thirteen holes bored through the roots in various places; 15 broaches were found in canals.

PORCELAIN: WHERE AND WHY.

BY C. N. THOMPSON, CHICAGO, ILL.

The trend of the times seems to indicate a tendency on the part of the profession to adopt a radical change by setting aside established procedure for filling teeth in favor of something new.

Whether this change from an anchored to an adhesive filling is an indication of progress, is a matter of opinion that depends more upon the extent of the change than otherwise. Nearly all agree that porcelain fills a long felt want, still the majority justly feel cautious about using it beyond the demands of their clientele, until more certain as to its reliability. Most of the literature on the subject deals either with its merits or technical details without attempting to consider *where* it should be used, and if there is a place *where it is practical*. Then there might be an answering *why*.

Men of to-day claim the right to do and think for themselves. Ready made standards are being analyzed for facts and a few of our accepted procedures escape a test for survival. Such progressive unrest has produced a mixture of good and evil: Good, so far as it has taught that we must work along scientific lines honestly and faithfully, if we win; evil when carried to extremes that are to react. But after all experience teaches, that the shifting tendencies so prevalent now have as ever a permanent background; that there is order amidst the seeming confusion and that many of our so-called sudden changes follow unchanging rules. To the philosopher who sees the subject whole, this revolutionary disturbance is but a turning point due to the gradual improvement in the cements as well as our methods of handling the metals, the two merging together as an inlay, which without harm to our present effective procedures may increase our usefulness.

Champions of the new ask us to follow a seductively enticing way that has not been fully explored and established. Followers of the old, secure in the records of the past, decry the change unmindful of rude awakening, but the truth lies somewhere between the two: Hence the where and why.

The idea in the mind of the writer is to undertake to formulate some definite guiding principal that will assist us in diagnosis if I

*Read before Iowa State Dental Society, Des Moines, Iowa, May 2 and 3, 1905.

may so speak. Taking into consideration the size, depth and location of the cavity, the structure of the tooth, the supporting tissues and the actual physical condition of the patient and make a selection based upon logic.

Metal by itself, although having fought a good fight, and though still to do so, for a time in my judgment is not a logical restoration for the lost parts of teeth; its color and incompatibility have always seemed inconsistent with the eternal fitness of things. Its baleful influence in effect is ever before us in discolored and abscessed teeth that beset us daily, caused often by one of our own beautifully made but murderous metal fillings that destroyed the pulp. Knowing this, is it any wonder that we attempt radical departures?

Until recently to discard metal as a filling material meant a dependence upon cement and though all are agreed that it is the most satisfactorily comfortable filling material at our command its lack of permanency usually prohibits its use. What more natural then, when thought necessary, than to combine the good qualities of the two: using the adhesive and supporting properties of the cement to sustain a metal covering to protect it from wear and disintegration, in the form of an inlay, particularly when with the advent of porcelain the question of color remained no longer a factor.

Happily and as might have been expected the opinion of the profession was divided as to the wisdom of the move. The conservative contending that cement with all its frailties would be our undoing. While the enthusiasts declared that even though it did occasionally fail, there was enough good qualities present to at least warrant a conservative use of it. Of course the extremest demonstrated what could be done.

After more than ten years continuous experience with porcelain inlays it is the opinion of the writer, that it is impossible to carry on an honest up-to-date practice without it and an examination of records showing many hundreds of these fillings, develops the fact that the percentage of failures is no more than metal fillings, and particularly in large cavities. It should be remembered, however, that as soon as I discovered that its marginal weakness revealed a possible avenue for failures when exposed to masticating forces I withdrew, using gold inlays on occluding surfaces instead. Therefore the percentage of failures mentioned would probably be lessened.

As to the reliability of position all that can be truthfully said is, that no amount of past experience can warrant us anything more than a correspondingly strong expectation for the present and future, but we find that expectations based upon careful observations of past events are as a rule trustworthy.

Therefore, basing a forecast upon past experience it is safe to say, that as the percentage of failures of porcelain fillings are found to be as low as any other and the percentage of lost pulps far less, we are justified in making judicious use of it. It is not always indicated any more than other filling materials, and none but the blind would think of entirely discarding other well tried procedures for it any more than he would of discarding all but one style of coat for both summer and winter, wet or dry.

When the choice is narrowed to the point of whether it shall be anchored or an adhesive filling, what shall determine the selection? To decide this it becomes necessary to note the virtues and objections of each in comparison.

The main virtue of gold in any form is edge strength, which is one of the greatest frailties of porcelain. Therefore at points of stress gold would have the advantage.

The greatest virtue of porcelain is its color, one of the objectionable features of gold.

In effect a less cardinal feature of the adhesive filling but in reality a point of great virtue is its compatibility, something not credited to anchored fillings.

Regards the rigors of insertion the inlay has the advantage tremendously.

Cavities filled with inlays, owing to the adhesive setting of cement, are less liable to suffer fracture and for that reason are practical in teeth of poor structure, something not particularly true of anchored fillings.

There is no attempt in the foregoing to isolate any one filling material or method as the best all around filling, but rather to select the good qualities of each to the end that porcelain may be used only when indicated, as follows:

- 1st. As to location of cavity if in the twelve anterior teeth or within the lines of vision and not on an occluding surface use porcelain. (Incisal cavities are not to be understood as occluding.)

- 2nd. If not within the lines of vision, any part involving an

occlusal surface use gold. If large, use an inlay, if small use gold foil. By large is meant, if cement is necessary to protect the pulp from thermal change.

3rd. If within the lines of vision and upon the occlusal surface as in a proximal occlusal cavity in bicuspsids the extent of the cavity should guide, if large and well to the lingual use gold inlay, if small use gold foil. If extensive and involving the buccal surface, use porcelain.

With regard to the supporting tissues and physical condition of patient.

1st. If sound, Article 1-2-3 will guide.

If not, an inlay is indicated in proportion as the patient or tooth is infirm.

In the consideration of this subject at this time it is not necessary to attempt the subject as a whole, for it has been so thoroughly covered in detail in the past few years that all have become more or less informed in a general way and have ideas relative to technique already.

The idea is to take up the principles involved in properly selecting and preparing cavities, for the reception of this material as demanded by its brittleness, and in a logical way, satisfy ourselves as to its limitations, taking gold foil fillings as a base for comparison.

The greatest stumbling block to most of us when taking up the study of porcelain restorations lies in the fact that we cannot forget our cavity formation for gold; but, if we will but stop and consider the great difference between the two materials and note that the one is brittle, the other is not; the one has little edge strength, the other is unlimited in that respect. Is it not common sense to conclude that each must demand special consideration when preparing cavities to receive them. Margins for gold are beveled to prevent chipping them during the process of condensing the foil at that point, and also in occluding cavities to allow the gold to protect them from masticating stress where they would probably chip or crumble if left sharp. Now if sharp occluding enamel margins fail under gold what is to prevent the breakage of like margins supported by cement reinforced by porcelain? It is generally understood that cement is quite temporary on occluding surfaces, as an entire filling, and the rule holds good in the case of the thin layer of cement between the tooth and porcelain filling *when exposed to wear and stress*, because

all admit that cement in *the smallest aperture will wear some*, and if so, are not the sharp unprotected margins of the cavity on one side and of the filling on the other left exposed to the stress of mastication, which is sure in time to chip them down to the cement? This condition again leaves the cement re-exposed to wear, and so on. It is therefore impossible to so place a margin of porcelain filling, upon a point exposed to masticating forces, that will not chip at that point.

The foregoing would naturally father the thought that porcelain should never be used in occluding cavities, which in the main is true. But conditions could occur where a porcelain filling even with chipped and ragged margins might be considered more practical than gold, and, with this thought in mind this subject was undertaken. Be it understood, however, that what follows is to be applied mostly to fillings in both incisal and occluding cavities. All other cavities when at all indicated are considered safe for porcelain, if thought advisable, and also that the established practices of extension for prevention applies to porcelain the same as for other filling materials. It cannot be expected to protect much better than gold, beyond the cavity margin. However, there should be less hesitation about extending the cavity because porcelain restores to normal appearance.

Following what has been said it is necessary to consider cavity formation from several standpoints.

First—Location of right angled margins as far as possible from localities exposed to heavy masticating strains.

Second—To make room for bulk of porcelain of sufficient depth to withstand blows or crushing strains.

Third—Retention against dislodgment.

Fourth—To facilitate the burnishing of the matrix and insure the removal without changing its shape.

Fifth—To defeat as much as possible the tendencies of the cements to produce opacity.

The locations of margins farthest from exposed localities in the anterior teeth can only be determined by the position of the opposing teeth, the guide being to avoid faceted areas, if possible locating the cavity margin at points least worn. Thus upper incisors with a shearing underbite can seldom be permanently restored with any filling material, let alone porcelain. When the bite is end on

direct and heavy porcelain is seldom necessary, because the teeth are usually short and discolored, but if the cavity is large they can be depended upon to give good service. Cavity outline on the labial surfaces is the least conspicuous when irregular or zig zag because the variations in refracted light destroys a clear vision of the outline which conceals.

The formation for incisors applies to the cuspid also with the exception made necessary by its conical point, so when the outline approaches the cusp it should be extended a little beyond that point where on the descending slope the filling margin will be protected from blows by the restored cusp which is made strong against fracture, and, besides the filling margin will then present an obtuse corner which is much less liable to chip than if acute as it would have been on the ascending slope.

BICUSPIDS OCCASIONALLY NECESSARY.

Bicuspid are really the most difficult to outline accurately, particularly the lingual cusp of the upper and the buccal cusp of the lower, because they are so generally exposed to stress. The only guide is to study the opposing teeth and locate outline in such manner as to avoid abraided places and if the cavity approaches the cusp point proceed as in case of the cuspid, and if it becomes mesio, occlusal, distal, then cut the entire cusps away freely and carry the outline of the cavity down far enough to give good depth of porcelain, to insure against fracture, thus reproducing the entire occluding surface, which will locate all margins beyond and below masticating wear.

FOR MOLARS—SELDOM NECESSARY.

The outline shall be particularly safe-guarded, but the numerous fissures that cross from the occluding to the axial surfaces present opportunities for concealing the outline; by following them out onto the buccal or lingual surfaces far enough down to remove them from stress and allow heavy cusp restorations. The nearer the fissure can be followed the more protection awarded the filling margin.

BULK FOR STRENGTH.

Relative to bulk for strength it should be remembered that thin porcelain is never safe in any locality and that it sometimes breaks during the cementation if at all thin, being unable to stand even the test for survival, so a certain thickness in proportion to the area

of the cavity is necessary and it is wisdom to err in this particular because increased thickness adds depth for retention, prevents the cement from showing through to interfere with shade, and though it encroaches upon the vicinity the pulp seldom transmits thermal action detrimentally.

The strongest presentation for either tooth enamel or porcelain is as a segment of a sphere as seen by the rounded corners of incisors and the conically spherical formation of cusps of both natural and artificial teeth, but as it is impossible to make both the cavity and filling convex at the margins and have them fit, the best that can be done is to split the difference and prepare so that when finished the margins will be parallel with the perpendicular of the tooth, giving bulk for strength with the margin parallel with the lines of force. In securing bulk for strength it is thought good practice in every case, be it incisor, cuspid, bicuspid or molar, to start from the incisal or occlusal surface, as the case may be, on a line parallel with the tooth perpendicular and cut down until the dentine is reached, and a little beyond, from which point the wall, floor or surface may be given such formation as the individual case requires, having in mind the always present tendency to so form the cavity that thin sprawling fillings result, which must be avoided.

RETENTION.

While we all know that cement has certain adhesive properties and that many advocate relying upon it entirely for retaining inlays, there can be no objection when forming cavities to keep in mind the possibilities of retentive formation with the idea of creating an interlocking condition to make the filling more secure, and that will compel the placement of the filling from one direction and that on a line with masticatory strains, thus depending upon the cement only as a key to lock the filling in. The details of this part of the subject has been discussed in the journals so recently that we will pass it by saying that the body of the filling and not extremities should be selected for retentive projections, and that the more securely that the filling is interlocked within the cavity the greater the certainty of securely seating it while cementing it to place.

FORMATION TO FACILITATE BURNISHING THE MATRIX.

The tendency of the platinum foil to dodge or slip when burnishing it to the cavity is so dependent upon the deep formations that it

should not be overlooked. Every cavity, however simple, should be prepared in such a way that there will be a definite angle or depression in the bottom, to be used as a locating point to prevent subsequent movement, retentive formations favors burnishing because as soon as one point is down it is possibly to securely hold it until others are similarly fitted when it will be inclined to stay without holding it, so that it can be swaged to its place using cotton or gum camphor, gutta percha, etc., ahead of a drift of wood.

The overlap of the matrix must not be forgotten, for if cavities are formed to receive fillings from but one direction, obviously the matrix must be likewise removed, and in cases where the cavity extends below the greatest diameter of the tooth crown the overlap below that point must necessarily be very slight, and if the perpendicular axial curvature is marked, then cavity formation to obviate the condition must obtain.

Without cement there would be nothing to say about inlays, nevertheless its opacity presents one of the most difficult and discouraging problems that we have to deal with in securing shades. It sometimes utterly ruins fillings that previous to being cemented to place were exact, and the only suggestion in cavity formation to forestall this is to cut the lingual away more than the labial, thus allowing the outer plate of enamel to lap over the filling, which usually prevents a view of the cement through the filling, which is what causes the apparent change of shade.

All inlays are so dependent upon cement for their retention that it is now the vital question. Given a durable cement and inlays would soon become universal. Unless it were so very good that it alone would be permanent.

The knowledge of what is the maximum adhesive strength of cement is not known, and the average dentist takes little thought of the subject and less pains to acquaint himself with its erratic tendencies and for that reason he ought not to expect it to hold when mixed at random, by guess and with prayer.

The fact that inlays come out should not be considered as against their use; it has little to do with the matter. Men who know the most about inlays say the least about that feature, because it is known that properly inserted inlays fillings can seldom be removed except by slowly grinding them away, or in the case of porcelain, by breaking them into pieces with the chisel. So he who condemns

inlays because they come out, is basing his opinion on his lack of ability, and casting boomerangs that return to himself.

I do not mean to infer that cement can be made to support inlays regardless of cavity formation, for I am a firm believer in a good mechanical clutch between the filling and the cavity, but even so, if the cement is not thoroughly and judiciously mixed and applied, it will not even answer as a key to lock the two together.

The process of mixing cement cannot be described beyond the securing a smooth, tacky consistency is acquired. It is generally ordinary directions. One needs to spend hours or days if necessary, working with and watching its peculiarities until the knack of used much too thin, for its excess can be as readily expelled when pressing the filling into its seat, if of a creamy consistency as well as though mixed thinner.

Cement powder under the microscope resembles a mass of fine gravel mixed with sand and an occasional large stone, and as the largest particle of powder between the filling and cavity determines the marginal space, it becomes necessary to secure a cement powder that is uniformly finely ground. But the more fiercely the cement mixture is spatulated, the greater the possibility of breaking the (quite large stones) down to the average, which of course is desirable.

For properly mixing cement a strong, pliable, rather long bladed spatula (I use hickory) gives the best results. It should be used rapidly with long, strong strokes, exerting considerable downward pressure, thus compelling a thorough mechanical mixing, which is the only way to create the opportunity for an accurate chemical union, which is very necessary if the maximum density and adhesiveness is to be attained.

The ordinary small spatula wielded in a dabby or puddling manner spoils much good cement, and the wonder is, that it lasts so well when so treated.

In conclusion I take leave to sum total the *where* of porcelain as follows:

To be used for esthetic reasons only, and its application in the posterior teeth to be diminished in proportion as it is to be exposed to stress.

AND THE WHYS.

1st. It restores the tooth in color and appearance as well as form, which recommends it.

2nd. It is brittle, consequently its marginal finish is not constituted to withstand the forces that accompany mastication, therefore its use is limited.

3rd. Because the cements are not dependable when exposed to masticating wear, which denies their use in posterior teeth.

However, nothing but time can absolutely settle the controversy, so that the best we can do is to give credit where it is due, but remembering that any filling material whatsoever that having been placed in competitive test with gold foil fillings as porcelain has, and in after years be found *not* wanting is worthy of our keenest consideration, and though I am convinced of this, I feel conscious of the fact that if the hearts of the profession could be laid bare to-day the gold foil filling would be found hidden there for times of crisis, before and above all others, we cannot forget our tried friends. But we cannot stand still, it is either progress or regress, so every man must know himself and make his own decision, knowing that though caution is commendable, yet caution often misses opportunities, and to those who hesitate it can be said that phantom fortune is as often lured by appearances as by things more stable, but the appearances must not deceive; that none need hope to successfully compete in this mystic arena of color and shadow without due and careful preparation, for we grow by what we master and rise by it alone.



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SOCIETY ANNOUNCEMENTS
AND REPORTS OF MEETINGS
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NORTHERN IOWA DENTAL ASSOCIATION.

The eleventh annual meetings of the Northern Iowa Dental Association will be held at Decorah, Tuesday, Wednesday, and Thursday, September 12, 13 and 14.

A NEW JOURNAL.

The State Board Journal is the name of a monthly periodical devoted to the interest of boards, students and colleges of medicine, dentistry and pharmacy. It is published by the State Board Publishing Co., Washington, D. C. The new publication has our best wishes.

THE NORTHERN ILLINOIS DENTAL SOCIETY.

The Northern Illinois Dental Society's eighteenth annual convention will be held at Elgin, October 18 and 19, 1905. All dentists of this and surrounding districts are most cordially invited.

A. M. HARRISON, Secretary, Rockford, Ill.

CENTRAL TEXAS DENTAL ASSOCIATION.

The Central Texas Dental Society met in regular session August 13, with Dr. J. K. Campbell, Vice-President, presiding, in the absence of the President. Routine business was transacted at the afternoon session, while at night interesting papers were read by Dr. J. O. Hall, of Waco, and E. P. Gould, of Temple. There was a representative attendance. The next meeting will be held at Belton on October 14 next.

NORTHEAST NEBRASKA DENTISTS.

At a recent meeting of the dentists of Northeast Nebraska an association was formed, to be called the Northeast Nebraska Dental Association. The following officers were elected: Dr. C. E. Brown, Emerson, President; Dr. T. B. Hickert, Wayne, Vice-President; Dr. C. S. Barker, Norfolk, Corresponding Secretary; Dr. E. M. Hagan, Bancroft, Recording Secretary. The next meeting of the Association will be held in Norfolk some time in October.

NEW JERSEY STATE BOARD.

The New Jersey State Board of Registration and Examination in Dentistry will hold their semi-annual meeting in the theoretical branches in the Assembly chamber of the State House at Trenton, N. J., on the 12th, 13, and 14 th of December, 1905. Sessions begin promptly at 9 a. m. each day. Practical operative work done in the office of Dr. C. S. Stockton, 22 Central avenue, Newark, N. J., by appointment of the examiner. Practical prosthetic work at the office of Dr. A. Irwin, 425 Cooper street, Camden, N. J., on a date

assigned by the examiner. Application must be in the hands of the secretary two weeks prior to the examination.

CHARLES A. MEEKER, D. D. S., *Secretary*.

29 Fulton Street, Newark, N. J.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The twenty-second annual meeting of the National Association of Dental Faculties, held at Buffalo, N. Y., July 27-28, 1905, resulted in the election of the following officers and committees: President, J. H. Kennerly, 2645 Locust street, St. Louis, Mo.; Vice-President, J. I. Hart, New York; Secretary, George Edwin Hunt, 131 East Ohio street, Indianapolis; Treasurer, H. R. Jewett, Atlanta, Ga.; Executive Committee, D. J. McMillan, Kansas City; L. P. Bethel, Columbus, Ohio; J. B. Wilmot, Toronto; R. M. Sanger, East Orange, N. J.; H. B. Tileston, Louisville; Ad Interim Committee, S. H. Guilford, Philadelphia; M. C. Marshall, St. Louis; J. P. Gray, Nashville; Foreign Relations Committee, G. V. Black, Chicago; W. F. Litch, Philadelphia; D. R. Stubblefield, Nashville; William Carr, New York; J. D. Patterson, Kansas City. Forty-three of the fifty colleges holding membership were represented by delegates, and a most harmonious meeting was held. United States Consul J. H. Worman, Munich, Germany, was present at one session, and told what was being done to rehabilitate the American degree in that country. Announcement was also made that the United States Government had recognized the National Association of Dental Faculties in its act regulating the practice of dentistry in the Philippine Islands.

GEORGE E. HUNT, *Secretary*.

THE FRATERNAL DENTAL SOCIETY OF ST. LOUIS.

The First Annual Clinic of the Fraternal Dental Society of St. Louis
Will Be Held November 20-21, 1905.

Special papers by Dr. E. E. Wedelstaedt of St. Paul, clinics by Drs. A. C. Searl, J. F. Wallace, William Finn, C. N. Booth, J. J. Booth, Ed. S. Brown, W. T. Rutledge, and others, bearing on the Black and Wedelstaedt methods and principles of cavity preparation and filling. Drs. F. E. Roach, George T. Banzett of Chicago, W. Leon Ellerbeck of Salt Lake City, and others, will demonstrate the various phases of porcelain work. The time-proven advantages and disadvantages of high and low fusing bodies will be shown. Others will operate, showing methods in dental prosthesis and orthodontia.

A full line of exhibits, in a beautiful exhibit room. Hotel headquarters at the Jefferson Hotel. All are invited to attend and participate. Inquiries should be addressed to D. O. M. LeCron, Superintendent of Clinics, Room 1501, Missouri Trust Building, or to the Secretary. BURTON LEE THORPE, *President*.

S. H. VOYLES, *Secretary*, 3201 Washington Avenue.

A decorative horizontal banner with ornate scrollwork and floral patterns at both ends. In the center, the word "NECROLOGICAL" is written in a bold, serif, all-caps font.

NECROLOGICAL

E. J. MORRISON.

On the 11th inst. arrived the news of the death of Dr. E. J. Morrison, dentist, at Kettle Falls, Wash., of Bright's disease. For twenty years Dr. Morrison was a practicing dentist in Minneapolis, with offices in the Pillsbury building, Sixth and Nicollet. The funeral was held at Kettle Falls, where the interment took place.

DR. HENRY E. MANN.

Dr. Henry E. Mann, one of the oldest practitioners of dentistry in New Bedford, Mass., died suddenly July 18. Dr. Mann was 60 years old and had been engaged in his profession for forty years in that city. He was a native of Nantucket, and when a young man came from the island and went into the office of Dr. Ward, where he learned the dental business. After remaining with Dr. Ward for a number of years, he opened business for himself and had been at his Purchase street office for over twenty years. Dr. Mann was of a retiring disposition and never sought public office and belonged to no societies. He leaves a widow and one son, Dr. William W. Mann.

MORTON ERVINE.

Morton Ervine, a student of the Ohio Dental College of Cincinnati, is dead of yellow fever at New Orleans. His was the death of a hero. He heard that a friend was seriously ill at New Orleans from the dread fever. Ervine, although he was himself in poor health, went to the bedside of his friend to nurse him. He was taken with the fever and died. Ervine was about thirty years old. He lived at Kingston, Tenn., and attended the University at Knoxville, where he received the degree of Bachelor of Arts.

Ervine attended the Ohio Dental College, which is the dental department of the University of Cincinnati.

That he should go to New Orleans to nurse a sick friend, while he was himself in poor health, shows the brave character of the fellow. His poor health probably caused him to become a quick victim of the fever after he had been inoculated with the disease.

DR. HUDSON R. HURD.

Dr. Hudson R. Hurd, aged eighty-five years, one of the oldest dentists in the United States, died September 6 at his home in Cleveland, after a two days' illness.

For over fifty-five years Dr. Hurd had been an active practitioner, and he was the first dentist in Cleveland to give nitrous oxide gas. Besides being one of the oldest dentists in the country, Dr. Hurd was one of the oldest Odd Fellows, having been a member for over fifty years.

Dr. Hurd was born September 27, 1820, in Lake county, but spent a number of years of his life in Geneva, where he went with his parents when a small boy. He studied medicine and dentistry in Cincinnati, when but twenty years of age. He practiced in Cincinnati for a time, and then located in Crawfordsville, Ind., where he practiced for five or six years. In Crawfordsville he formed a friendship, which lasted for life, with Gen. Lew Wallace, the noted novelist, who died several months ago.

He came to Cleveland about thirty-six years ago and practiced dentistry until about nine years ago, when he retired from active practice to enjoy the remaining years of a very active and useful life. For years he had an office in a building which stood on the Park building site, and in later years was associated with his son, Dr. O. J. Hurd, in the practice of dentistry.

Dr. Hurd had been in good health and returned only a few weeks ago from Connorsville, Ind., where he attended a family reunion. Monday he went to East Cleveland and caught cold, which resulted in complications that caused his death.



MISCELLANEOUS

DR. THORPE HONORED.

Dr. Burton Lee Thorpe of St. Louis has been honored by having conferred upon him by the Universal Exposition a commemorative diploma and commemorative medal in consideration of his having originated the Fourth International Dental Congress.

GINGIVITIS.

The following combinations are recommended by *Merck's Archives* in the treatment of gingivitis:

Sig.—One teaspoonful in half a glass of warm water as a mouth-wash; or:

Sig.—One dessertspoonful as a mouth-wash, diluted in half a glass of water.—*Monthly Cyclopedic*.

NEURALGIA.

The causes of neuralgia are predisposing and exciting. In those predisposed to neuralgia there seems to be a pathological condition affecting the functional constitution of the nervous system; and those who are so disposed will have the affection developed by trifling causes, while in those who are not so disposed the same causes would fail to produce this result.

TO PREVENT EXPANSION OF PLASTER IN SETTING.

If slacked lime is added to boiling water and the clear liquid decanted for use in mixing plaster-of-Paris, the plaster will not expand.—*P. B. McCullough, International Dental Journal*.

SKIAGRAPHS.

In examining skiagraphs we must be careful to avoid misinterpreting distortions, which are seen occasionally, and which are due to the technic employed in taking the skiagraph.—*Dr. F. B. Noyes, Review*.

NEW METHOD OF ATTACHING TEETH TO PLATE.

A method which proved successful in a case where teeth had been repeatedly broken from the plate is as follows: Use long pin-plate teeth for six anterior teeth, back and edge as for bridge, articulate and solder together, then solder platinum wire back of teeth for anchorage to rubber base, proceeding from this point as usual with rubber plate.

DR. C. A. BENT, Mt. Ayr, Iowa.

THE BANDLESS CROWN.

My requirements for a bandless crown are briefly these: Small, rigid, flat, or square post, equal in length or, if possible, longer than the crown; root trimmed within free margins of gum and with convex end; perfect continuity and adaptation of crown. Set with gutta-percha or chloro-percha and cement to allow for easy removal of pin in case of breakage.—*F. E. Roach, Dental Digest.*

TO STOP NEURALGIA PAIN.

To stop neuralgia pain, make a loop around the tooth with a piece of fine platinum wire. Bring the ends together and attach them to the negative pole, cover the wire with some gutta-percha so that it will not touch the cheek, and place the positive pole in the hand or on some other part of the body. Use about five or six volts and you will be surprised to see how soon the pain will be relieved.—*Digest.*

RADIOGRAPHIC NEURALGIA

In any case of neuralgia, it is our duty to have a radiograph taken. If the skiagraph is negative, you have, at least, done your duty. An inverted third molar is a common cause of facial neuralgia, the crown of the tooth pressing on the nerves passing through the inferior dental canal. I can not imagine how a tooth could be in that position without producing such results.—*Dr. T. W. Brophy, Review.*

COCAINE SOLUTIONS.

The toxic effects of cocaine depend not only on the quantity of the alkaloid injected, but likewise, and to a great extent, upon the strength of the solution. Reclus, starting with a 20 per cent. solution, has gradually decreased the percentage until at the present time he employs solutions of from one-half to one per cent., the maximum, with results all that could be desired.—*J. E., Dental Cosmos.*

TREATMENT IN CASE OF ACUTE FORMING ABSCESS.

Open, if possible, through the pulp-canal; otherwise lance and open through the bone, using antiseptics, such as oil of cloves, creosote, or Black's 1, 2, 3. For the relief of pain, hot foot-bath, hot water to the face, Dover's powder five to fifteen grain, and five to thirty grains of iodide of potash, to control the pus formation, and eliminative agents to carry away the poison.—*Elgin Mawhinny, Dental Review.*

PORCELAIN INLAYS.

It is undoubtedly true that porcelain inlay work has come to stay, but it will be used in a *modified* way. I am doing many things with

porcelain that I am delighted with. I have done some things with it that I am not at all pleased with, and in some instances have done them over, using gold instead of porcelain. Men too frequently ride a hobby until they kill it, and the tendency with some has been to use porcelain in *all* places, where gold in many of them would have been better.—*Dr. E. S. Darby, Item.*

PRACTICAL THINGS THAT COUNT.

A small piece of pure soap will be found useful in many ways during operations. The mouth-mirror may be kept from clouding by coating the glass with dry soap, and then wiping clean with a dry napkin. The edge of a sandpaper disk will not catch in the rubber dam when polishing fillings, if it is first run in the soap. Disks and strips will cut faster and polish better if slightly soaped on the grit side before using. Disks and strips thus prepared that are used for polishing gold fillings, will retain the particles of gold, and if saved and refined will more than pay for the trouble. Rubber dam will slip easily over the teeth if soaped around the holes. Ligature silk when soaped slips easily between the teeth. Use pure soap and sparingly, and it will not be disagreeable to the patient.—*Dental Register.*

TO PROTECT AND REMOVE RUST FROM STEEL INSTRUMENTS.

(1) Dissolve one part of paraffine oil in 200 parts of benzine. Wash the instrument and dry by warming. Dip in the solution and lay away in a warm place to dry. (2) Instruments of polished steel, iron, nickel, etc., will remain indefinitely free from rust or corrosion if kept in a 2 per cent solution of either the carbonate, bicarbonate, benzine, or borate of sodium.—*Medical World.*

FILLING ROOT CANALS.

Personally, I find no reason to enlarge "easy" canals, and no hope of success in any method proposed for difficult ones, so I do not ream at all. If a canal is too small to admit the finest brooch, and all has been done that cleanliness, drugs, and dryness will do, why not fill over it and enjoy the chances in its favor rather than incur the alternative labor, vexation and danger, to make its chances worse?—*Dr. W. C. Gowan, Dom. Jour.*

SHADING PORCELAIN WITH CEMENT.

To ascertain the effect a certain color of cement will produce on an inlay, mix the powder with water, place it in the cavity and force the inlay to place over it. This gives the same effect in appearance

as mixing with phosphoric acid. In this way a test may be made before the actual setting, and the correct shade of cement powder selected.—*F. E. Cheeseman, Chicago.*

SETTING PORCELAIN CROWNS.

Oxyphosphate of copper is the strongest cement for setting crowns. The objectionable black line at the joint can be overcome by placing some slow cement, mixed rather stiff, on the buccal edge of crown and root. Then place the oxyphosphate of copper cement, mixed rather thin, on the lingual edge of root and in the root-canal. Insert the crown, and the stiff cement will push back the thin copper cement and prevent the black line on the buccal side.—*Chas. A. Clark, British Dental Journal.*

THE DENTIST IN SUMMER TIME.

Backward! Turn backward! Oh, Time, in your flight!

Make me a boy again—just for to-night!

I have grown weary of teeth and decay—

Weary of waiting for patrons to pay.

I hope there will not be a patient to-day.

I do feel like drinking so dreadfully deep;

I long so to slumber—yes—I want to sleep.

Backward! Turn backward! Oh, Time, in your flight!

Oh! How I yearn for ne'er-ending night—

No more of tinkering, no teeth to fill;

Some patients so dull they can't see if they will;

The rest are so smart they won't bend to my will.

How I long for that slumber, so long and so deep,

That I'll never wake up again—I *want to sleep!*

—*H. N. L.*

With apologies to Elizabeth Akers Allen.



Personal and General

Burglars—Dr. N. G. Mills, at Connersville, Ind., lost \$35 in gold through burglars recently.

Dentist Insane—Dr. C. M. Cook was adjudged insane and admitted to asylum at Kalamazoo, Mich. Cook was from Grand Rapids.

Robbed—Dr. Augustus Mickel, a dentist at Albany, N. Y., lost considerable gold and a lady's gold watch through burglars recently.

Burglars—The offices of Tift & Nelson and B. F. Allen at Glencoe, Minn., were robbed of about \$175 worth of gold leaf Sept. 9.

Victims of Burglars—Drs. J. W. Brimacombe, W. H. Gregg and A. F. McClain, all dentists at Marion, Ind., have been robbed by burglars recently.

Robbed—Dr. C. W. Reed, of Santa Rosa, Cal., suffered the loss of gold and wearing apparel to a considerable amount Sept. 1 through burglars.

Brownfield-Schroeder—Dr. G. R. Brownfield of Fairfield, Neb., and Miss Clara Schroeder, of Lincoln, were married at the latter place Sept. 9th.

Vulcanizer Explodes—A vulcanizer in the office of Dr. C. L. Davis at Richmond, Ind., started a blaze which caused a serious loss. No insurance.

New Dental School—The Creighton Dental School is the name of a new Omaha institution. It is to be in the Creighton Institute building and will open Oct. 2.

Burglars in Indiana—Dr. G. A. Foster, of New Albany, Ind., lost \$35 worth of gold through burglars August 27. Other burglaries were reported from Connersville, Marion and Anderson.

Burglars in Michigan—Burglars entered A. J. Wildanger's dental office at Flint, Mich., Aug. 13, by breaking in the glass door with a paving brick. The safe was opened and the thieves secured \$150.

Sauerbrun-Lederer—Dr. Leo. T. Sauerbrun, a Mansfield, O., dentist, and a well known society man, and Miss Ora Lederer, of New Washington, were united in marriage Sept. 3. They will make their home in Mansfield.

Examiners Retained—Dr. C. B. Bratt, Allegheny, and Dr. G. W. Klump, of Williamsport, have been reappointed members of the Pennsylvania State Board of Dental Examiners by Governor Pennypacker.

Army Dentists—Contract Dental Surgeon Waddell and Samuel P. Ivey, assistant to the dental surgeon, are stationed at Fort D. A. Russell, Wyoming, to remain on duty for the month of Sept.

A Leavenworth Dentist Robbed—A burglar broke into the dental parlors of Dr. R. E. Nelson and secured \$40 worth of gold. This is the second time within a year that this place has been robbed.

Dentist Shot—Dr. J. P. Fann, a dentist, was shot three times and probably fatally wounded at Ardmore, I. T., Aug. 8 by Tom McGhee, who was immediately placed under arrest. The two men had had previous trouble, resulting from family affairs.

Missouri Dental Examiners—Governor Folk has appointed the following members of the state board of dental examiners: H. B. Purl, Kirksville; T. E. Turner, St. Louis; S. C. A. Rubey, Clinton; R. D. McIntosh, Monett; C. B. Coleman, Poplar Bluff.

Dentist Hurt in Runaway—Dr. M. K. Pennington, a dentist at London, Ky., was with two children thrown from his buggy in a runaway Aug. 28. The doctor was fatally hurt, but the children not seriously. Pennington has been operated upon eleven times for hip disease.

Recrimination—First Boy—Your father must be an awful mean man. Him a shoemaker and makin' you wear them old boots!

Second Boy—He's nothing to what your father is. Him a dentist and your baby only got one tooth.

Dentist Dies at His Office—Dr. Joseph Lewenberg, forty-seven years old, a dentist of 603 Eighth avenue, New York, died on the stairs leading to his office there Aug. 17. He had suffered from a liver trouble. He died before a doctor reached him.

Steals Dental Chair—The unusual charge of stealing a dental chair has been placed against Guy Stevens, at Omaha. The chair was reported as stolen from A. S. Billings. After a diligent search by detectives the chair was located in a junk pile, broken to pieces. Stevens confessed to the theft. The chair, which was valued at \$65, was sold by Stevens for 32 cents.

Dentist a Suicide—Dr. H. J. Herman, a dentist at Chicago, committed suicide July 15. He stabbed himself above the heart with a large pocket knife and inflicted a wound which caused his death. Dr. Herman was 37 years old and a successful dentist. He was unmarried.

Thirty years ago his father dug a grave for himself and cut his own throat, but survived, and only recently died, Dr. Herman's landlady said.

Chicago Dentist Suicides—After suffering ill health for several years, Frank R. Richards, a dentist at 245 Fifty-seventh street, Chicago, committed suicide Tuesday night in his office by shooting himself in the head. Dr. L. D. Gorgus, whose office adjoins that of Richards, yesterday morning found the body of the latter lying on a couch with a revolver beside it. A note addressed to his mother said he had "stood it long enough."

Rogers-Heermans—Dr. J. E. Rogers, one of the members of the former dental firm of Watt & Rogers, Mattoon, Ill., and Miss Emma Heermans, were married at Paris, Ill., Sept. 5. Dr. Rogers, the groom, is especially well known to Mattoon base ball fans, as he was a member of the Mattoon team until several weeks ago, and has acted as umpire on numerous occasions.

Dentist a Bigamist—Dr. George A. Witzhof, a suave talker and of refined appearance, about 40 years old, is sought by the police of several

cities on a charge of bigamy. In his matrimonial transactions the doctor described himself as a Swiss dentist and chemist. The police declare that the record of Witzhof as a bigamist is larger and more daring than that of Bluebeard Hoch.

Dentist Injured—Dr. Elmer Whitman, of Corunna, Mich., was severely injured Aug. 29 by a fall from his bicycle. The front forks of his bicycle broke, throwing him heavily to the ground. Dr. Whitman sustained a slight concussion of the brain and one of his ears was nearly severed from his head by the fall. He was unconscious for over two hours, but has since then been improving rapidly.

Dr. Witzhoff, Alleged Bigamist—The Mail asserts that Witzhoff has been recognized at Manchester, Eng., from a photograph published in the Weekly Dispatch. He has been practicing as an American dentist under a high-sounding name. The resemblance of the dentist to the photographs began to be noticed. Simultaneously he began preparations for moving and left that evening. Several persons are positive he is the man, among them a woman to whom he was engaged and from whom he had obtained money and rings. It is not known where he has gone.

Dr. Brophy Returns—Dr. T. W. Brophy, who went abroad two months ago to attend the annual meeting of the International Dental Federation and to study conditions in the European centers, has returned home, and he says that the cities of the old world are far in advance of those in America in the matter of municipal care of their citizens. He says that in Strassburg there is a municipal infirmary where five expert dentists are ready to care for the teeth of school children who are too poor to pay for proper attention. In all parts of Germany children undergo a medical examination before being admitted to school.

Dentists For the Navy—One of the bills that will come before the next congress, and that is almost certain to be passed with very little discussion, will not only add a group of new and useful officers to the American navy, but will do, for the comfort and health of our naval forces, what has already been very successfully done in the case of the United States army. The bill provides for the appointment of regularly trained dental surgeons and has already received the indorsement of Secretary Moody, and been favorably reported by the committee of naval affairs of the house of representatives. In its present form it practically duplicates for the navy the arrangement that for some time past has provided the army with dental surgeons and has proved to be of the greatest importance to this branch of the service.

Beggar Flees from Dentist.—A man named Brondyk with a fad for begging money with which to have an aching tooth extracted, had an unexpected experience in Muskegon recently.

He accosted Justice Oosterbaan and told that magistrate, along with other hard-luck information, that he had a raging toothache and lacked

Brondyk was told to sit down a moment while the dentist was preparing only fifteen cents of having enough money with which to have the tooth yanked out. The justice answered that he would pay the entire expense

himself. The two men then started off for the office of Dr. W. W. Cunningham and the dentist was hurriedly called to pull the bothersome tooth. ing for the task. The justice stepped into a side room for a moment and as he did so he heard a sudden scramble and on going back to the waiting room saw Brondyk's coat-tails disappearing out of the doorway.

The Wisconsin Muddle—Action begun in the Circuit courts of Milwaukee county against the state dental board by the Milwaukee Medical College and fifteen of its graduates who were given diplomas this spring but were refused licenses by the state board, will not be heard in Milwaukee. Under the law, any action begun against the state or state officers may be transferred to the Circuit Court of Dane county by the defendants. The board of dental examiners has taken advantage of this statute and has notified the attorneys for the plaintiffs that a change of venue will be demanded.

With the notice of the demand for a change of venue, there were filed affidavits and a consequent order issued by Court Commissioner Kanneberg extending the time for the return of the writ of mandamus from Aug. 5 until Aug. 26. The board had been previously ordered by Judge Tarrant to issue licenses to the dental graduates of the college, or show cause why they could or would not obey the order. Similar writs were issued in the cases of the fifteen graduates, and the independent action of the college. The extension of time is asked for because two members of the board are away and will not return in time to prepare for the hearing.

The Dentist as Seen by a Small Boy.—The dentist are a man with a pare of pinchers whot pulz yer teethe furst and yer legg aftirwards. Paneless dentistz are men whot pulz teethe without hurtin themselves a bit. Men, women an' gurls gozez to dentistz butt hoarses has thayre teethe pulled ginrally by vetinery sirgins. Thay ain't no dentistz fer doggs and chickens doan't need nun fer they ain't got noe henn's teethe. Boys haz thayre teethe pulled ginrally by gittin' 'em nocked out. The dentist lerns to dent in a college an' 'then he gits a office an' hyres a pettie gurl to hand you a magasine an' say: "Set down, pleze. The dockter will be threw sune. It's a pleasant day, ain't it?" One day mi mother tuk gas to hav a tooth pulled an' mi father and me stood an' seen it did. When she cum to, se sez: "Hennery, how did I act?" "Great," sez mi father, "you nevir sed a wird." My mother loked at him hard. "Hennery," she sez, "whot did you mene by that?" "O, nothin' much," sez zhe, "only I wisht I had sum uv that gas up at the house." Then he laffed. "Ten dollars," sez the dentist. Then mi fathir quit laffin' an' cut out all merriment fer the rest uv the weke.

Woman Dectective for Illegal Practitioners.—Three Utica, N. Y., dentists who have been practicing without the license of the state board were arrested July 21, upon complaint of the State Dental Society, which has lately made similar moves in New York city and is inaugurating its up state campaign in this city. The Utica practitioners upon whom the warrants were served were Arthur P. Faass, 51 Varick street; Harry C.

Leslie, Seneca building, and Thomas E. McCraith, Horsey building. They were arraigned in City Court in the afternoon and their cases were put over to October 17 for jury trial.

The information leading to the arrest of the three dentists was lodged with the city court by Miss Belle Conro, an attractive and alert young woman, who has spent much of her time lately in dentists' chairs securing evidence. In her affidavits she stated that her home is at 144 West 109th street, New York. The affidavits indicate the mode of procedure followed by the woman as a detective. In her complaint against Dr. Harry G. Leslie she states that on July 17 he examined her teeth with instruments; that on the same date he treated a tooth in the mouth of one Mrs. Bruh, and that on July 19 he filled a tooth in the mouth of Jesse Johnson. The testimony was similar in the cases against the other two dentists.

Japanese Dental School—Dr. C. C. Allen, secretary of the Kansas City Dental college, has received the annual announcement of a sister school on the other side of the world, the Tokyo Dental College (Misaki-Cho, Kanda-Ku) of Tokio, Japan. The publication is in English and in general is letter perfect. Some odd constructions are to be noticed.

Among the faculty are mentioned Dr. Sensai Nagayo, court councillor and president of central sanitary board, Dr. Kisai Takayama, dentist to His Imperial Majesty, the emperor.

The announcement is for the "Twelfth" annual session. After outlining the nature of Japan's primitive dentistry the account says: "Such was the condition until the flood of Western civilization was poured in upon us as the result of the advent of Commodore Perry of the United States navy."

In 1890 Dr. Takayama, visiting America, "was deeply convinced of the progress of dentistry there," and returning to Tokio established the present college "at his own expenses."

"In spite of the fairly rapid progress made by the Tokio Dental college during the past twelve years, dentistry in Japan is still far below the level of being recognized as in a fairly advanced stage. So a new building is proposed and an extension of the work. How to raise the necessary fund is a question, but, however, we all know the absolute necessity of such an equipment, and all the officers of the college are fully determined to move on until they realize the motto, 'Where there is a will there will be a way.'"

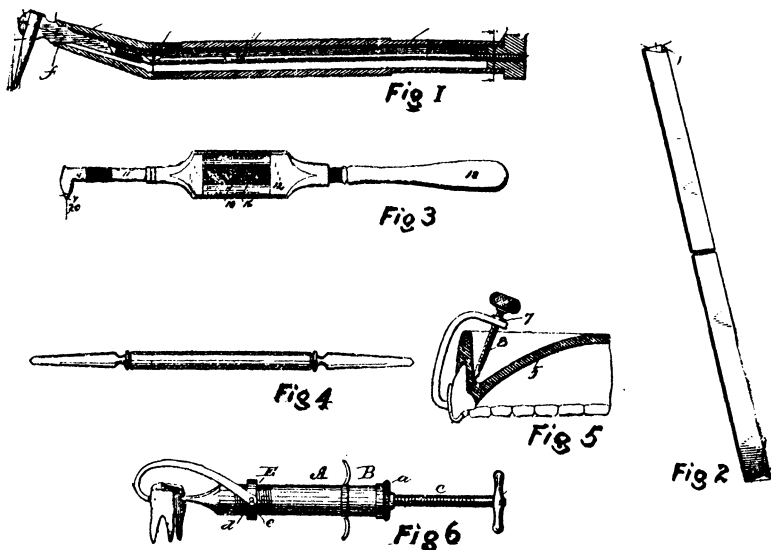
In Japan dentistry had its origin about 200 years ago and it was then known as "Kochiu-Kwa," or stomatology. The duty of dentists at that time was limited to the extraction of diseased teeth, supplying artificial dentures in their place and remedying diseases of the mouth by some primitive operation. These practitioners were either men of means or men who had abandoned knighthood for the profession. Some of them had the honor of the "shogun," the actual ruler of Japan at that time. They were regarded with respect. Afterwards nearly everyone went into the tooth pulling business and reduced the profession to the contempt of the public. Owing to this the science of dentistry was totally neglected until the coming of the Western civilization and the founding of the Tokio Dental college in 1890.—*Kansas City Star*.

PATENTS

797,684. DENTAL INSTRUMENT. William E. Harper, Chicago, Ill. Filed July 5, 1904. Serial No. 215,299. Fig. 1.

Claim.—1. A dental instrument comprising the combination of an operating-point provided with a cleaving-lug, a shank and a shoulder, with a hand-piece having a portion thereof bent at an angle to the body of said handpiece, a clutch arranged to hold said operating-point at an angle to the axis of said handpiece, and means for operating said clutch to engage said operating-point.

796,120. DENTAL MATRIX. Theodore Green, Ridgway, Ill. Filed June 18, 1904. Serial No. 213,149. Fig. 2.



Claim.1. A dental matrix comprising a ribbon or band of metal having at one terminal an approximately wedge-shaped stop rigid with the band and provided with a flat outer side, a shoulder and a tip.

2. A dental matrix comprising a ribbon or band of metal, and a stop rigid with each terminal thereof and provided with a shoulder and a tip, the outer faces of the stops being flat, their inner faces rounded.

3. A dental matrix comprising a ribbon or band of metal of a length entirely to encircle one or more teeth, and a wedge-shaped stop carried by one terminal thereof.

797,106. HAND-OPERATED DENTAL TOOL. Charles P. Gray, Cincinnati, Ohio. Filed July 13, 1904. Serial No. 216,345. Fig. 3.

Claim.—In a dental handpiece, a tubular handle, a hollow head connected thereto, a rotary chuck-casing seated in said head and provided at its inner end with a gear, a chuck device in said casing and an operating-tool held by said chuck, a shaft mounted in said handle and having a gear adapted to mesh with the gear on said chuck-casing, a slotted sleeve mounted on said handle and a rotator rigidly mounted upon said shaft within the slot of said sleeve, adapted to be turned by the thumb and finger of the same hand that holds the handpiece.

797,270. TOOL FOR DENTAL OPERATIONS. Rudolph Dreher, Idar, Germany. Filed Mar. 29, 1905. Serial No. 252,718. Fig. 4.

Claim.—A tool for dental operations provided with a working point or blade composed of agate.

795,754. DENTIST'S TOOTH-CLAMP. Robert E. Barton, St. Louis, Mo. Filed Feb. 1, 1905. Serial No. 243,708. Fig. 5.

Claim.—In a dentist's tooth-clamp; a tooth-seat adapted to receive a tooth; a bracket extending from the tooth-seat and having a screw-threaded bearing; and a clamping-screw mounted in said bearing adapted to engage the artificial plate and hold the new tooth in position.

795,270. DENTAL OBTUNDER. Charlie A. Damon, Fenton, Mich. Filed Nov. 26, 1904. Serial No. 234,361. Fig. 6.

Claim.—1. In a dental obtunding-syringe, a band or ring which is adjustable longitudinally upon the barrel of the syringe, and a hook pivoted to swing upon the band or ring by which it is carried in a plane longitudinal of the barrel of the syringe.

2. In a syringe a barrel therefor having an externally-threaded portion adjacent to the discharge end of the syringe, an internally-threaded ring for engagement with the threaded portion of the barrel, and a hook pivoted to swing upon the ring in a plane longitudinal of the barrel of the syringe.

REMOVALS.

Dr. L. H. Wirt from Muncie, Ind. to San Antonio, Texas. Dr. L. Husband from Sault Ste. Marie, Mich. to Manistique, Mich. Dr. M. L. McEvoy from Adair, Ia. to Creston, Ia. Dr. Keeton from Pleasantville, Ia. to Knoxville, Ia. Dr. Guy Crawford from Perry, Ia. to Burlington, Ia. Dr. H. H. Messmer from Pittsburg, Pa. to Bartlesville, Indian Territory. Dr. John Ladue from Allegan, Mich. to Norton, Kansas. Dr. R. A. Barron from Estherville, Iowa to Stillwater, Okla. Dr. Etta Patton from Alma to Norton, Kansas. Dr. Geo. R. Koch from Winona, Minn., to Minneapolis, Minn. Dr. Geo. M. Palmer from Chicago to Crookston, Minn. Dr. W. D. Davisson from Washburn, Ill., to McLeansboro, Ill. Dr. H. M. Wettengel from Pecatonica, Ill., to Rockford, Ill. Dr. E. E. Cotton from Waterloo, Iowa, to Colorado. Dr. Wm. F. Wiseman from Herman, Mo., to St. Louis, Mo. Drs. Prettyman and King from Rockford, Ill., to San Paulo, Brazil. Dr. C. B. Mead from Chicago, Ill., to Rockford, Ill. Dr. H. E. Pomerene from Oshkosh, Wis., to De Pere, Wis. Dr. A. F. Hemphill from Fremont, Ia., to Atlantic, Iowa. Dr. E. D. Wurtz from Stanton, Ill., to Carlinville, Ill. Dr. Julius Grat from Rhinlander, Wis. to Herman, Wis. Dr. F. E. Corlis from Chicago, Ill., to Marshall, Minn. Dr. G. E. Reed from Milton, Iowa, to Dows, Iowa. Dr. John Fields from Plattsburg, Mo., to Kansas City, Mo.

